300

SERVICE MANUAL 5020

marantz

model 5020

Stereo Cassette Deck

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INTRODUCTION

The service manual was prepared for use by Authorized Warranty Stations and contains service information for the Marantz Model 5020 Stereo Cassette Deck.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of the operation in the Cassette Deck.

The parts list furnishes information by which replacement parts may be ordered from the Marantz Company. A simple description is included for parts which can be usually obtained through local suppliers.

1. SERVICE NOTE

As can be seen from the circuit diagram, the chassis of Model 5020 consists of following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1.	Pre-Amp.	mounted on P.W. Board, P100
2.	Power Supply	mounted on P.W. Board, P400
3.	Switch	mounted on P.W. Board, P500
4.	Volume	mounted on P.W. Board, P600
5.	Lamp	mounted on P.W. Board, P650
6.	Terminals	mounted on P.W. Board, P700
7.	Dolby	mounted on P.W. Board, P800

2. TEST EQUIPMENT REQUIRED FOR SERVICING REPLACEMENT

For measuring or checking the Model 5020, the following instruments and materials are necessary.

VTVM

Audio Oscillator (af OSC)

Attenuator (600Ω)

Oscilloscope

Bandpass Filters (1kHz, 500Hz)

Wow and Flutter Meter

Torque Meter

Blank Tapes

Digital Frequency Counter

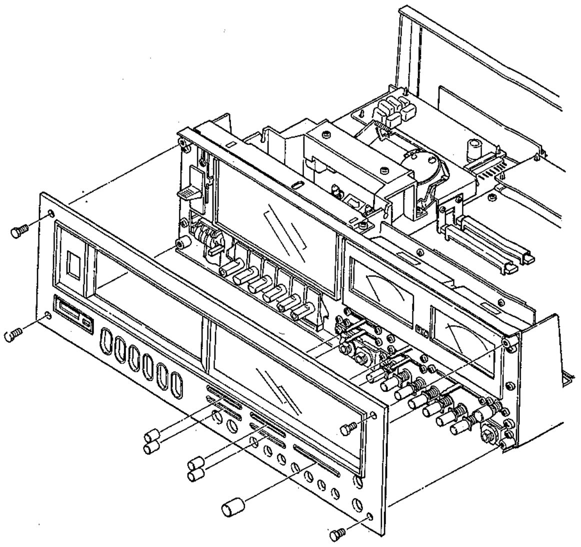
Distortion Meter

Test Tapes

3. DISASSEMBLING INSTRUCTIONS FOR MODEL 5020

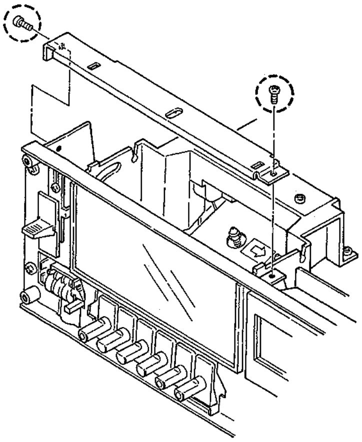
1. Demounting the Front Panel

Remove the five knobs. Unscrew the four hexagon bolts. The front panel, then, will be removed as illustrated in the line drawing right.

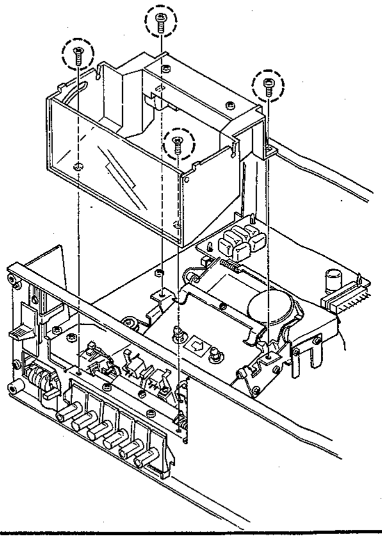


2. Demounting the Cassette Compartment for Repairing Around Head

2-1. Unscrew the two screws. Remove the upper supporting plate as illustrated below.

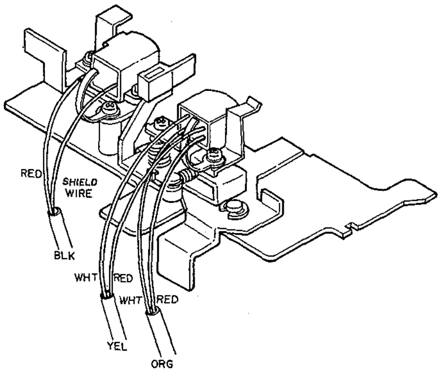


2-2. Unscrew the four screws holding the cassette compartment. The cassette compartment, then, will be removed as illustrated below.



3. Demounting the Tape Mechanism Block

3-1. Disconnect the head lead wires as illustrated below.


RED
SHIELD WIRE
BLK
WHT
RED
WHT
RED
YEL
ORG

3-2. Turn the recorder body upside down, and remove the connector located on the bottom of the recorder body (Fig. A).
Put the recorder body light again and remove the six screws holding the tape mechanism block. The block, then, will be removed from the recorder body as illustrated in Fig. B.

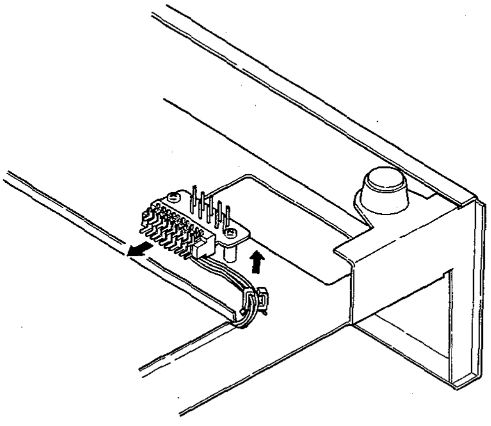


Fig. A

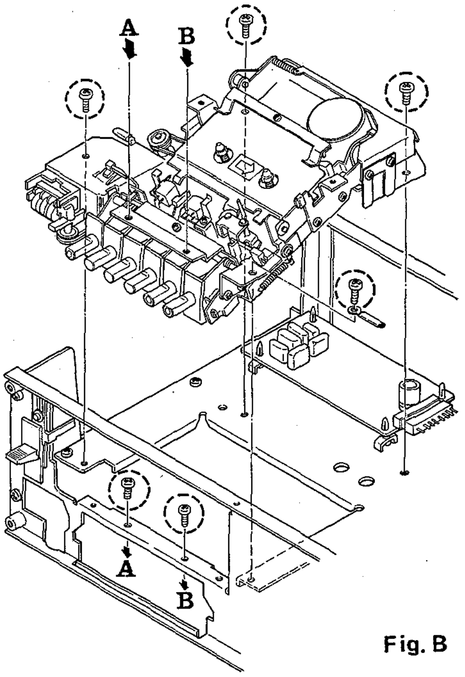
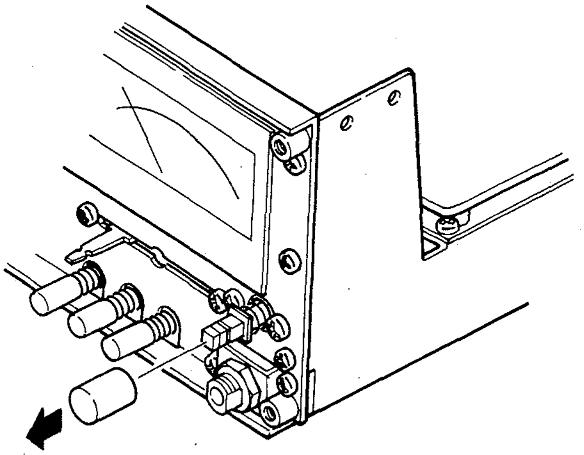


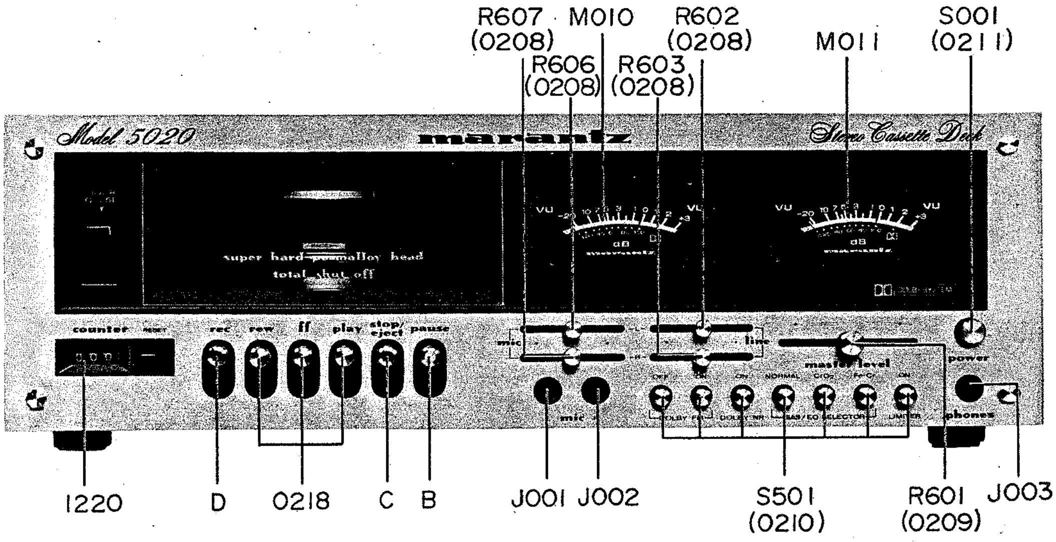
Fig. B

4. Replacing the Push-Switch Knob

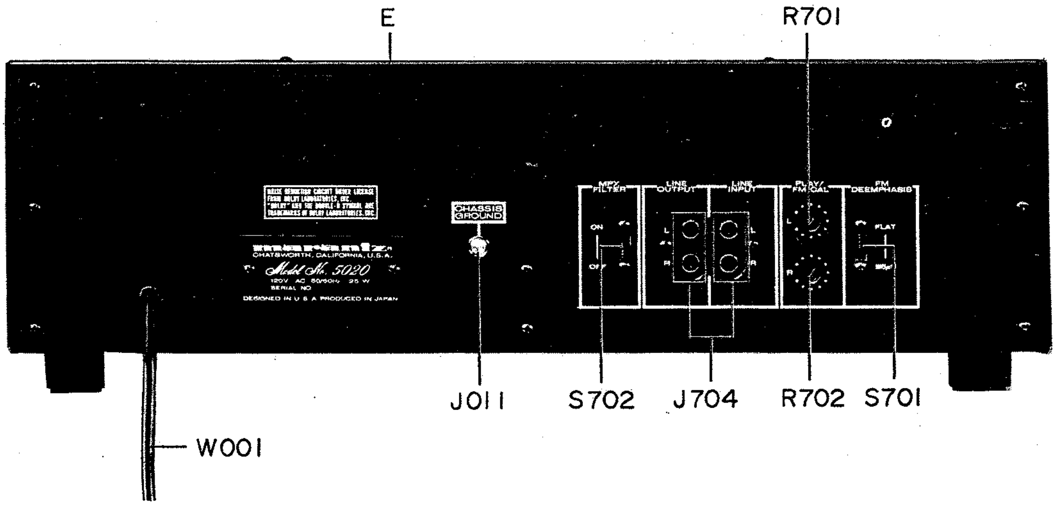
Set the push switch in the "off" state. Forcibly pull the knob in the arrow direction as illustrated right. The knob, then, will be removed.



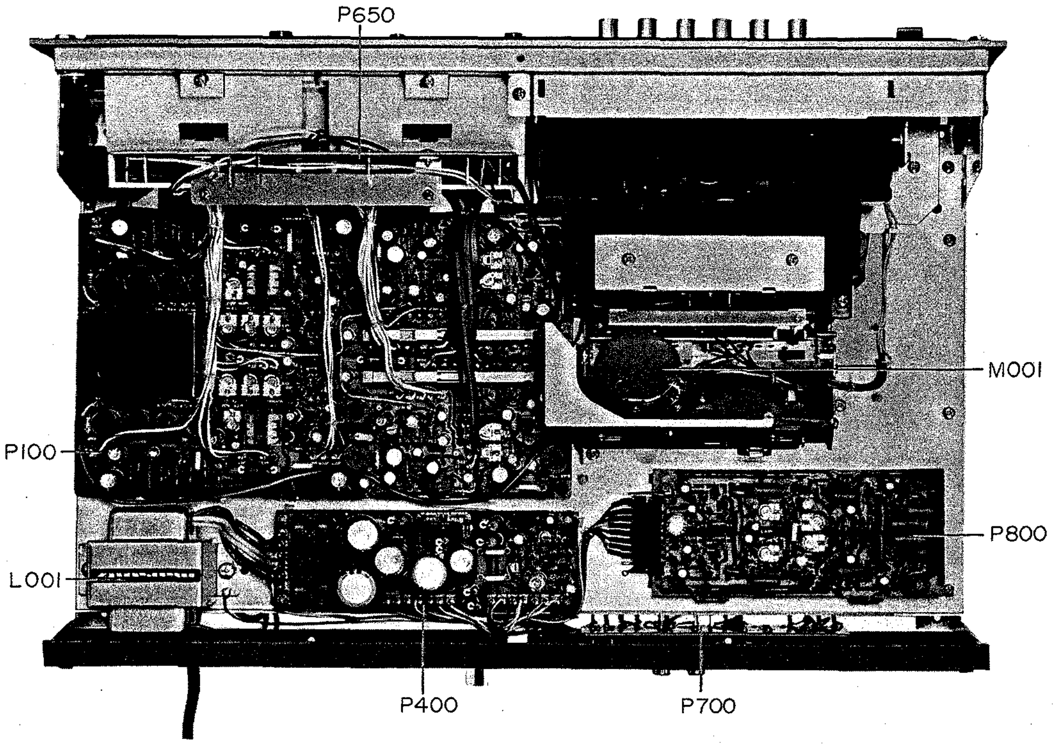
4. MAJOR PARTS LOCATIONS


R607
(0208)
M010
R602
(0208)
R606
(0208)
R603
(0208)
M011
S001
(0211)
Model 5020
marantz
Stereo Cassette Deck
counter
rec
rew
ff
play
stop/eject
pause
mic
line
master level
power
phones
1220
D
0218
C
B
J001
J002
S501
(0210)
R601
(0209)
J003

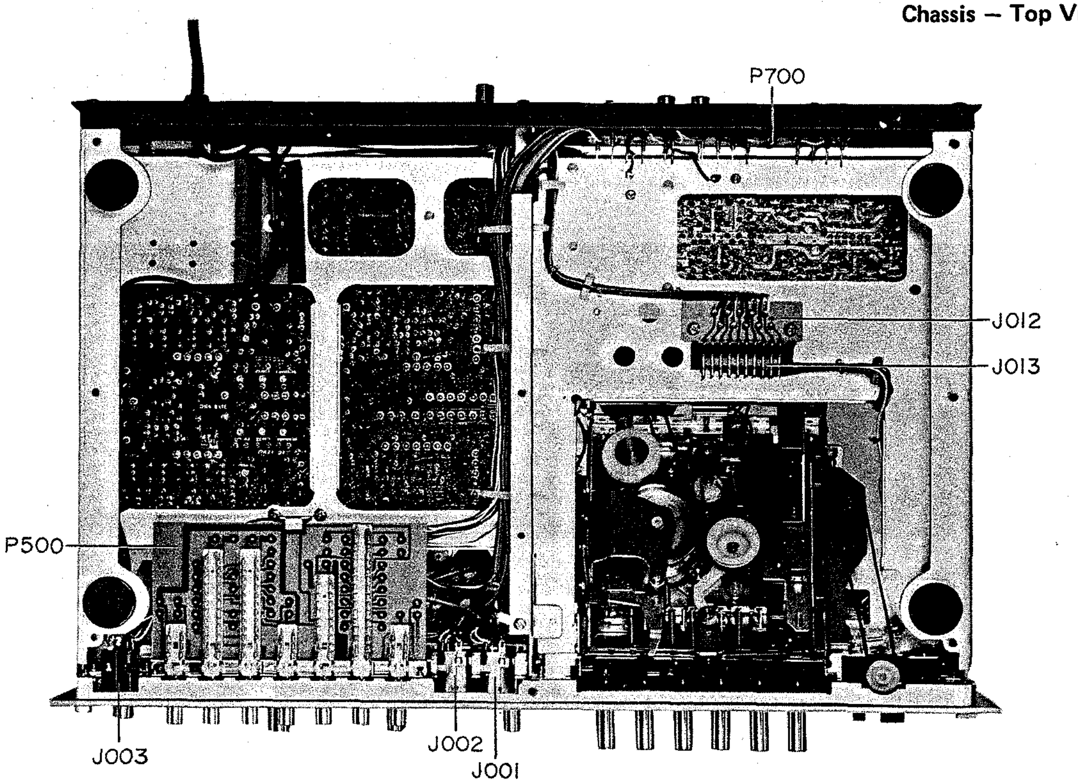
– Front View –


E
R701
CHASSIS GROUND
MPX FILTER
LINE OUTPUT
LINE INPUT
PLAY/FM CAL
FM DEEMPHASIS
Model No. 5020
J011
S702
J704
R702
S701
W001

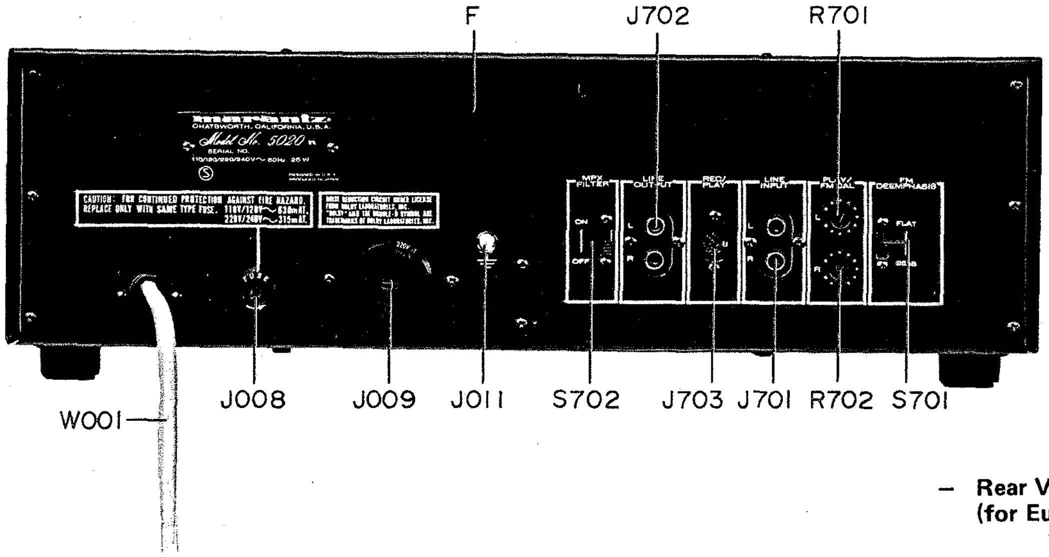
– Rear View –


P650
M001
P100
P800
L001
P400
P700

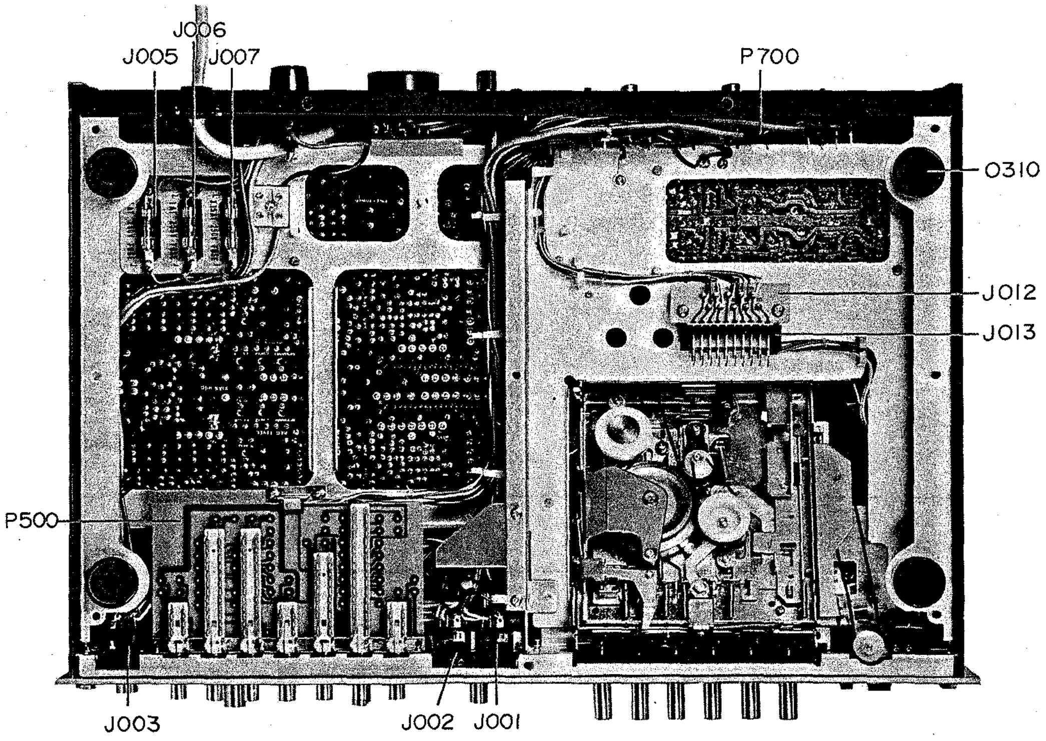
Chassis — Top View —


P700
J012
J013
P500
J003
J002
J001

Chassis — Back View —


F
J702
R701
marantz
CHATSWORTH, CALIFORNIA, U.S.A.
Model No. 5020
MPX FILTER
LINE OUTPUT
REC/PLAY
LINE INPUT
PLAY/FM CAL
FM DEEMPHASIS
ON
OFF
FLAT
L
R
W001
J008
J009
J011
S702
J703
J701
R702
S701

— **Rear View** —
(for Europe)

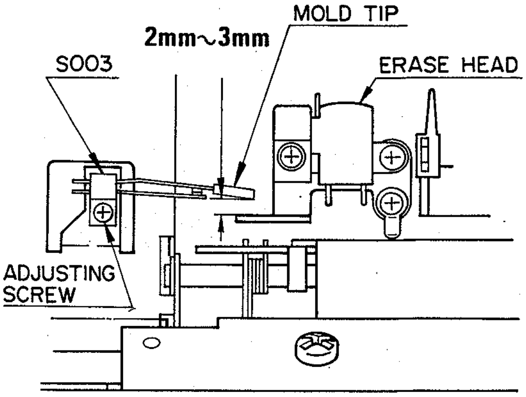

J006
J005
J007
P700
0310
J012
J013
P500
J003
J002
J001

— **Back View** —
(for Europe)

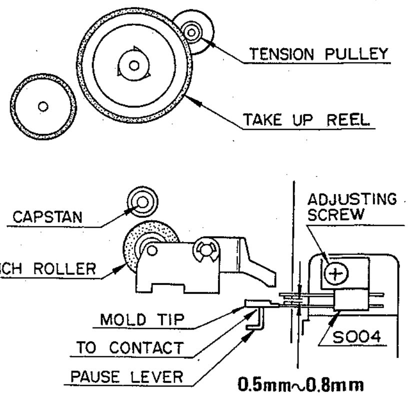
5. ADJUSTMENT PROCEDURES

5-1. MECHANICAL ADJUSTMENTS

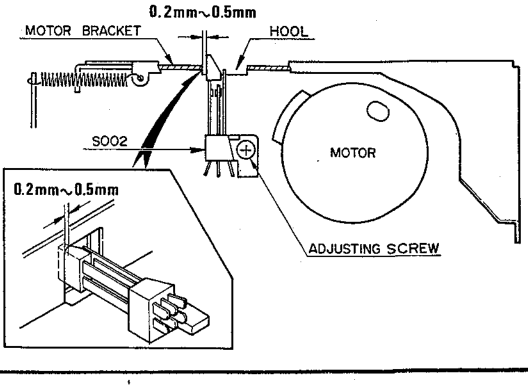
Adjusting the PLAY muting switch
In the stop state, loosen the adjusting screw at the PLAY muting switch (S003) and align the switch until there becomes 2 to 3mm gap between the mold tip at its end and its play operating arm, then tighten the screw to fix it.


MOLD TIP
2mm∿3mm
S003
ERASE HEAD
ADJUSTING SCREW

Adjusting the PAUSE muting switch
In the stop state, loosen the adjusting screw at the PAUSE muting switch (S004) and align the switch until the mold tip at its end comes in light contact with its pause operating lever and its contacts are separated 0.5 to 0.8mm, then tighten the screw to fix it.

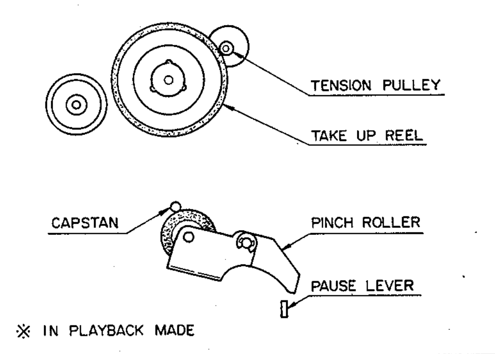

TENSION PULLEY
TAKE UP REEL
CAPSTAN
ADJUSTING SCREW
PINCH ROLLER
MOLD TIP
TO CONTACT
PAUSE LEVER
S004
0.5mm∿0.8mm

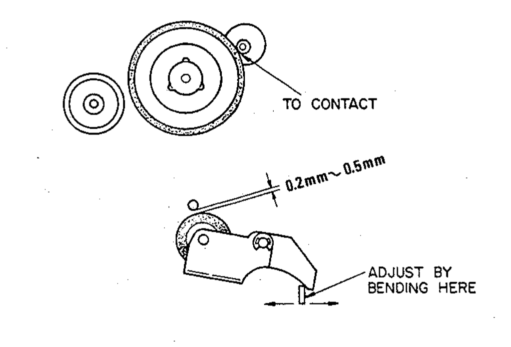
Adjusting the RECORD muting switch
Loose the adjusting screw at the RECORD muting switch (S002) and align the switch until there becomes 0.2 to 0.5mm gap between the mold tip at its end and motor bracket, then tighten the screw to fix it.

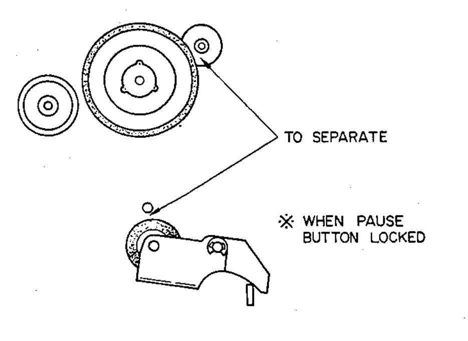

0.2mm∿0.5mm
MOTOR BRACKET
HOOL
S002
MOTOR
0.2mm∿0.5mm
ADJUSTING SCREW

Adjusting the PAUSE timing

Pause Lever should be so adjusted by bending with a pair of pliers that the Pinch Roller and the Capstan are disengaged before the Tension Pulley and then the Tension Pulley and Take Up Reel are disengaged when Pause button is depressed in Playback mode.

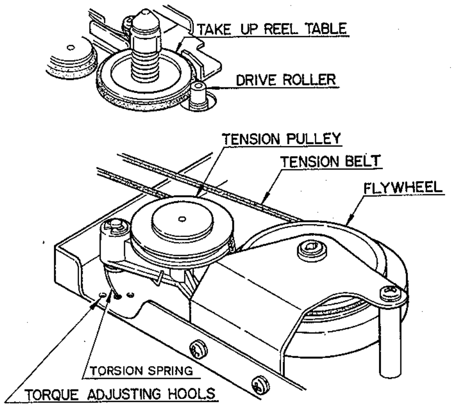

TENSION PULLEY
TAKE UP REEL
CAPSTAN
PINCH ROLLER
PAUSE LEVER
※ IN PLAYBACK MADE


TO CONTACT
0.2mm~0.5mm
ADJUST BY BENDING HERE


TO SEPARATE
※ WHEN PAUSE BUTTON LOCKED

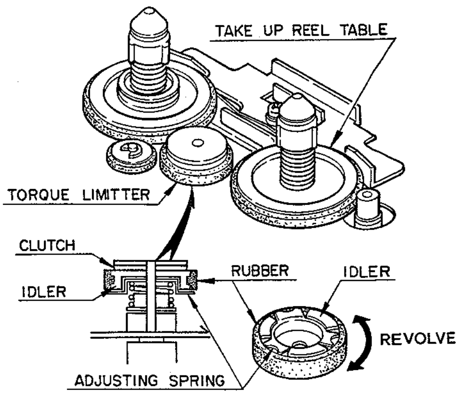
Adjusting the PLAY torque

If the PLAY torque is out of the standard, i.e., 40 to 70g·cm, first wipe off dirt and grease accumulated on the mating surface of the takeup reel with the drive roller and the surfaces of the tension belt. Second, suspend the torsion spring for the tension pulley on an alternative torque adjusting hole. If the torque is not within the standard yet, replace the tension pulley.


TAKE UP REEL TABLE
DRIVE ROLLER
TENSION PULLEY
TENSION BELT
FLYWHEEL
TORSION SPRING
TORQUE ADJUSTING HOOLS

Adjusting the FF/REW torque

If the FF/REW torque is out of the standard, i.e., 70 to 120g·cm, then change the spring put in the torque limiter to an alternative position for proper torque.


TAKE UP REEL TABLE
TORQUE LIMITTER
CLUTCH
IDLER
RUBBER
IDLER
REVOLVE
ADJUSTING SPRING

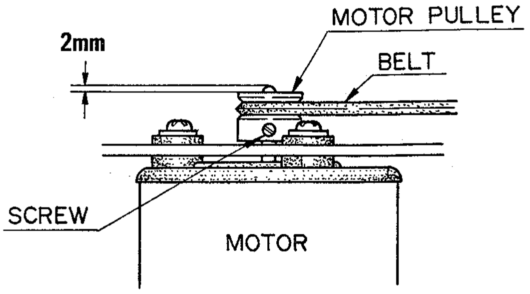
Measurement of PLAY, FF and REWIND torques
– in Play/FF/Rew Mode –

Measure the torques with a torque cassette to confirm that the torque satisfies the specified value in each mode.

Specifications:	Play	40 ~ 70 g.cm
	FF	70 ~ 120 g.cm
	Rew	70 ~ 120 g.cm

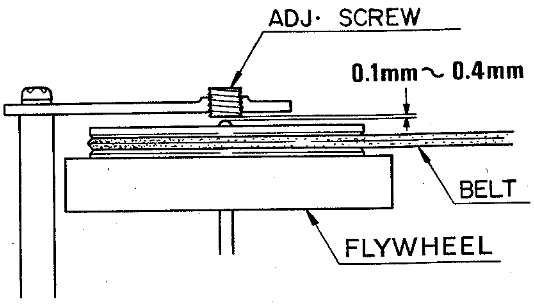
Adjusting the motor pulley mounting position

Loosen the set screw and adjust the position to obtain the distance of 2mm between the edge of Motor Shaft and the upper surface of Motor Pulley.


MOTOR PULLEY
2mm
BELT
SCREW
MOTOR

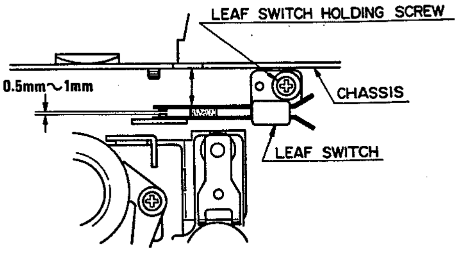
Adjusting the flywheel thrust

Adjust the thrust to 0.1 ~ 0.4 mm by rotating the adjustment screw. After the adjustment, be sure to lock the adjustment screw with paint.


ADJ· SCREW
0.1mm~ 0.4mm
BELT
FLYWHEEL

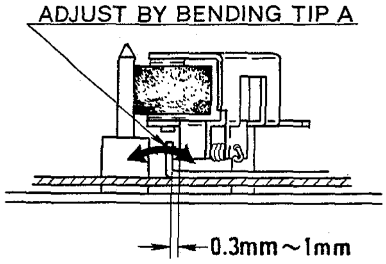
Adjusting the leaf switch position
– in Stop Mode –

Leaf Switch should be positioned parallel with the chassis.


LEAF SWITCH HOLDING SCREW
0.5mm~1mm
CHASSIS
LEAF SWITCH

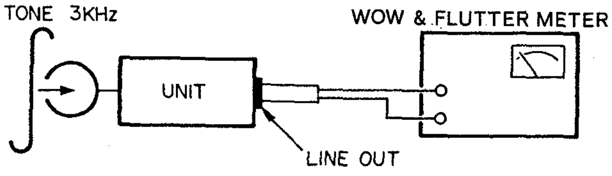
Adjusting the pinch roller position
— in Playback Mode —

In the playback mode of operation, bend the tip A right or left until there becomes 0.3 to 1.0mm gap between the pinch roller arm and pinch roller home stopper hook on the head chassis as shown.


ADJUST BY BENDING TIP A
0.3mm~1mm

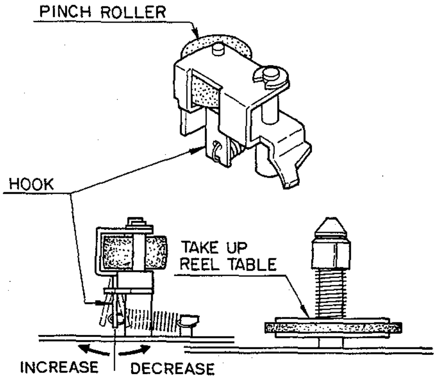
Measurement of wow and flutter
— in Playback Mode —

Playing back a 3 kHz Test Tape, connect a wow and flutter meter to the Line Out jack to confirm that the meter reading satisfies the specified value. Use the beginning and the last portions of the test tape for the measurement and the measurement should be performed at least 30 seconds after placing the unit in Playback mode.


TONE 3KHz
UNIT
WOW & FLUTTER METER
LINE OUT

Adjusting the pinch roller pressure

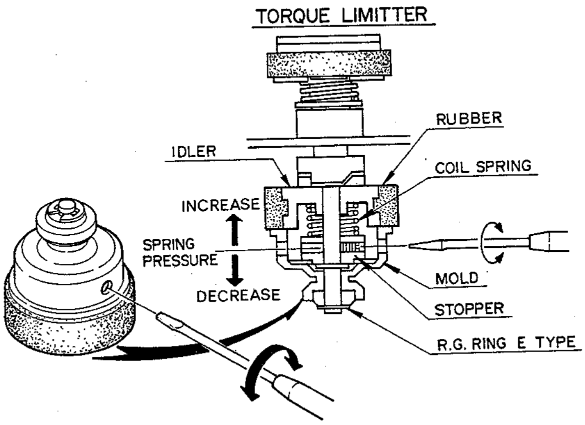
To adjust the pinch roller pressure, bend the spring hook beneath the pinch roller toward the takeup reel (for weak pressure) or in the reverse direction (for strong pressure).


PINCH ROLLER
HOOK
TAKE UP REEL TABLE
INCREASE
DECREASE

Adjusting the FF/REW autostop mechanism

If the tape is automatically stopped in the course of the fast forward or rewind, loosen the stopper screw within the mold under the torque limiter with a small standard screwdriver inserted into the hole located at the side of the mold. Move the stopper in the direction of compressing the coil spring, or upward in the figure, to increase the coil spring pressure to prevent such an erroneous stopping.

On the contrary, if the tape is not automatically stopped at its end, make the above-mentioned coil spring pressure weak and wipe dirt and grease off the mating surface of the flywheel with the rubber. If the tape-end stop is not normal yet, then replace the torque limiter.


TORQUE LIMITTER
RUBBER
IDLER
COIL SPRING
INCREASE
SPRING PRESSURE
DECREASE
MOLD
STOPPER
R.G. RING E TYPE

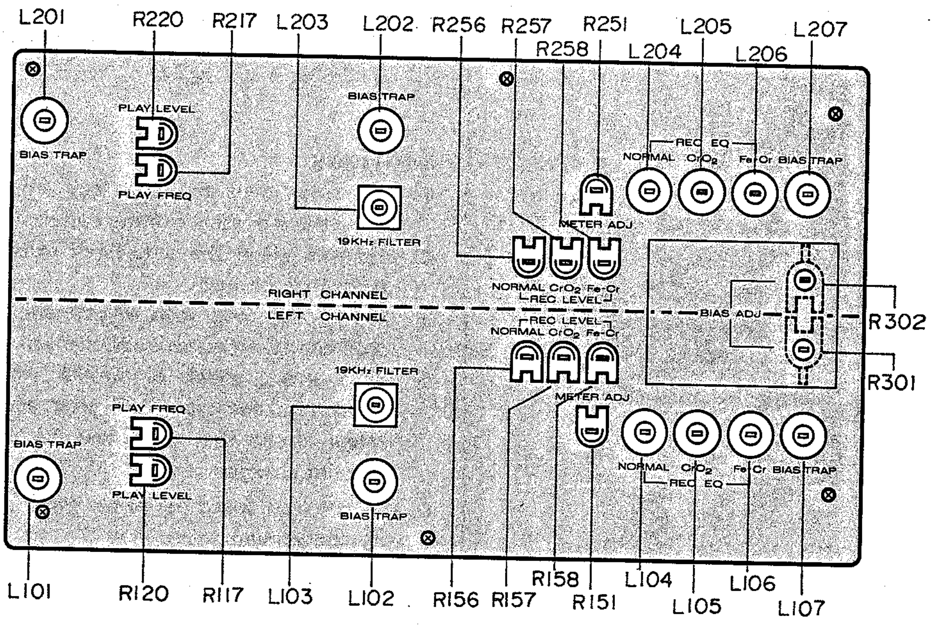
5-2. ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

Precautions Before Adjustment and Measurement

1. Before playing the test tape back, thoroughly demagnetize the heads, capstan and similar metal parts using an eraser as the test tape-recorded tone is easily erased.
2. Do not place the test tape on any measuring instrument.
3. Do not put the test tape near a place where the eraser is used.
4. Method of Demagnetization:–Turn the eraser power switch on at a remote position far away from the heads. Bring the eraser close to the heads, capstan and other parts to be demagnetized, and move it up and down four or five times to demagnetize. Slowly separate the eraser far away from the parts, and turn the power switch off.
5. Do not use any magnetized adjusting tool. When using it, demagnetize it from time to time in the course of each adjustment..
6. Do not turn semi-fixed resistor, capacitor, and inductor adjusting screws more than needed.
7. If measuring the tape speed wow and flutter, operate the tape deck in the normal operating condition.
8. Do not apply locking bond excessively.

Definitions

1. The "normal playback state" is an operating state of the tape deck which plays back the MTT-150 test tape and is adjusted so as to produce a 580mV output at the MAIN P.W. Board (P100) J125, J225 with the load assuming the measuring instrument input impedance of greater than 100kΩ and with the TAPE selector switch set at the NORMAL position.
2. The "normal recording state" is an operating state of the tape deck which records a 1kHz signal to a specified recording level for which the recording level control is adjusted with the 1kHz signal applied at a specified input level to the MIC input terminal.
   In the normal recording state, therefore, this tape deck is set up with the level control to the state that the level meter pointer may deflect to the 100% mark as 0VU with a 1kHz, 1mV input signal applied.


L201
R220
R217
L203
L202
R256
R257
R258
R251
L204
L205
L206
L207
BIAS TRAP
PLAY LEVEL
PLAY FREQ
BIAS TRAP
19KHz FILTER
REC EQ
NORMAL
CrO2
Fe-Cr
BIAS TRAP
METER ADJ
NORMAL CrO2 Fe-Cr
REC LEVEL
RIGHT CHANNEL
LEFT CHANNEL
REC LEVEL
NORMAL CrO2 Fe-Cr
BIAS ADJ
R302
R301
19KHz FILTER
METER ADJ
PLAY FREQ
BIAS TRAP
PLAY LEVEL
BIAS TRAP
NORMAL
CrO2
Fe-Cr
BIAS TRAP
REC EQ
L101
R120
R117
L103
L102
R156
R157
R158
R151
L104
L105
L106
L107

1. Head Azimuth Adjustment

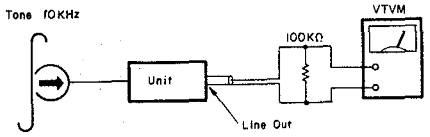
SET UP

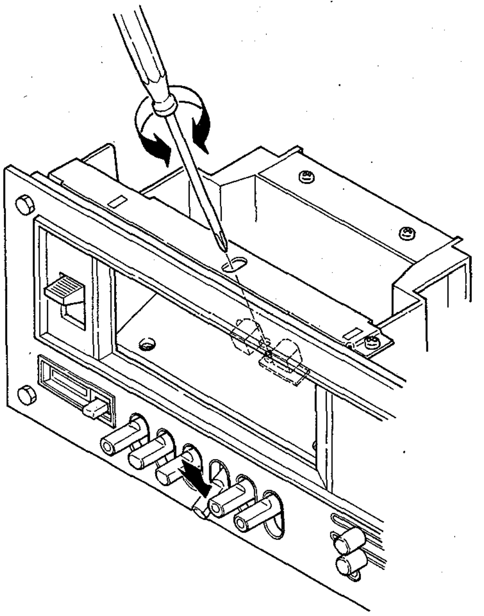
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. Output terminal used:- LINE OUT.
5. Test tape used:- MTT-116U (31.5Hz to 14kHz).

PROCEDURES

1. Play the 10kHz portion of the test tape MTT-116U back. Adjust the head azimuth adjusting screw for maximum VTVM read.
2. If the peak output reads of the right and left channels are different, set the screws to obtain the mechanical center between the peaks.
3. After adjustment, lock the screw with bond.

Mode: playback





CAUTION

After adjustment, repeat the playback and stop setting a few times to make certain of no head azimuth deviation.

2. Tape Speed Adjustment

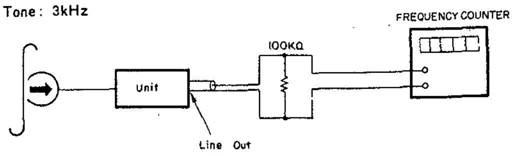
SET UP

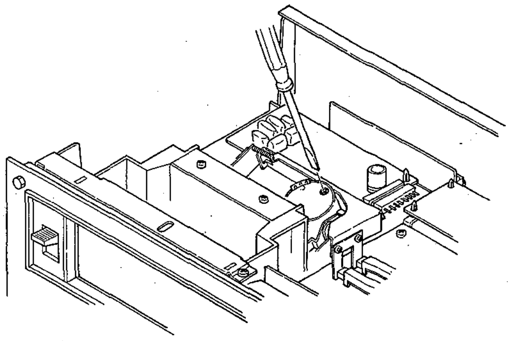
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Output terminal:- LINE OUT.
3. Test tape used:- MTT-111.
4. Unit position:- Horizontal.

PROCEDURES

1. Play the mid portion of the test tape MTT–111 back. Adjust the tape speed adjusting semi-fixed resistor for 2990 to 3010Hz counter indication.

Mode: playback





CAUTIONS

1. For adjustment, the tape deck should be set up in the normal operating condition.
2. Do not adjust the semi-fixed resistor more turns than needed.
3. Do not proceed with adjustment after the tape deck temperature has changed.
4. If a strong shock or similar vibration is applied to the tape deck after adjustment, make certain that the measured tape speed had not changed.
5. If the tape speed deviation occurs, perform the adjustment again.
6. Be careful that the counter may indicate a wrong value because of too low counter input level.
7. Before adjustment, allow for 30 seconds or more after depressing of the PLAY pushbutton.

3. Playback Equalizer Adjustment

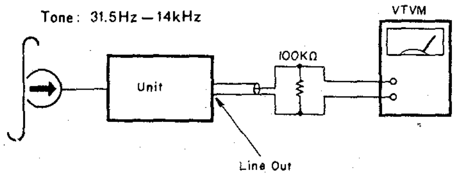
SET UP

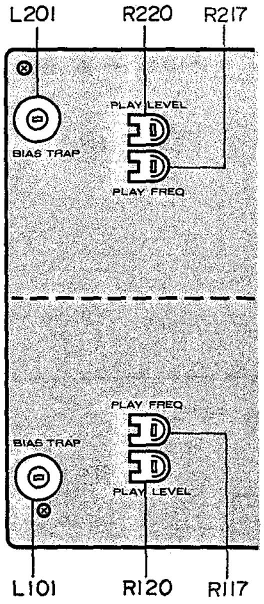
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. output terminal:- LINE OUT.
5. Test tape used:- MTT-116U (31.5Hz to 14kHz).

PROCEDURES

1. Play the test tape MTT-116U. Let the 315Hz signal level be reference as 0dB.
2. Adjust R117 and R217 (3kΩ each) for 10kHz frequency response of 0 to –1dB in reference to the 315Hz signal level (0dB).
3. Proceed both for the right and left channels in the same manner.
4. Note that clockwise turning of R117 and R217 will increase the 10kHz signal output level.

Mode: playback


Tone: 31.5Hz – 14kHz
VTVM
100KΩ
Unit
Line Out


L201
R220
R217
PLAY LEVEL
BIAS TRAP
PLAY FREQ
PLAY FREQ
BIAS TRAP
PLAY LEVEL
L101
R120
R117

4. Playback Output Adjustment

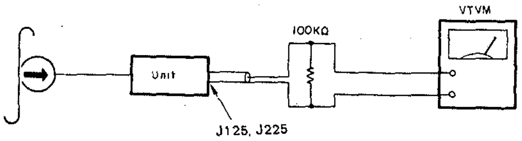
SET UP

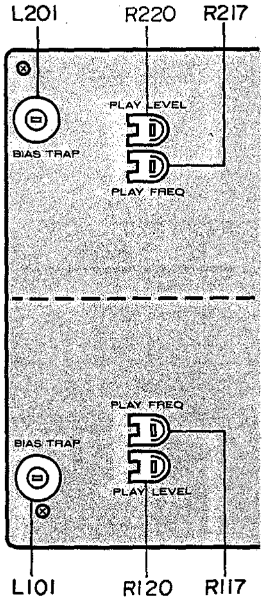
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. Output terminal:- MAIN P.W. Board (P100) J125 and J225.
5. Test tape used:- MTT-150.

PROCEDURES

1. Play the test tape MTT-150 back. Adjust R120 and R220 (50kΩ each) for 580mV playback output level.
2. Proceed both for the right and left channels in the same manner.

Mode: playback


VTVM
100KΩ
Unit
J125, J225


L201
R220
R217
PLAY LEVEL
BIAS TRAP
PLAY FREQ
PLAY FREQ
BIAS TRAP
PLAY LEVEL
L101
R120
R117

CAUTION

1. This adjustment should be performed after the one for the playback equalizer. If the playback equalizer is adjusted after the playback output adjustment, the playback output should be readjusted.

5. VU Meter Adjustment

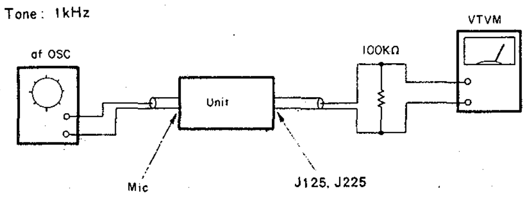
SET UP

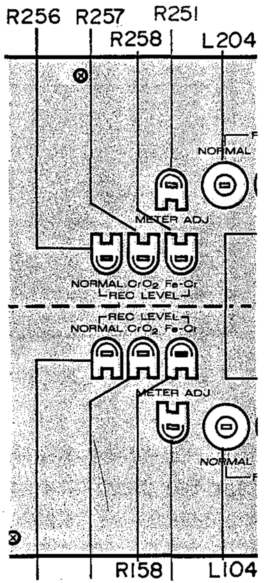
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. FUNCTION selector switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. Output terminal used:- MAIN P.W. Board (P100) J125 and J225.
5. Input terminal:- MIC.

PROCEDURES

1. Connect a 1kHz, –60dBV input signal to the MIC terminal. Set up the tape deck for the recording mode of operation.
2. Adjust the REC control for 580mV output level at MONI. OUT of the MAIN P.W. Board (P100) J125 and J225.
3. Adjust R151 and R251 (3kΩ each) until the VU meter pointer deflects to the DOLBY mark (DD) on the VU meter.

Mode: record


Tone: 1kHz
af OSC
Unit
100KΩ
VTVM
Mic
J125, J225


R256
R257
R251
R258
L204
NORMAL
METER ADJ
NORMAL CrO2 Fe-Cr
REC LEVEL
REC LEVEL
NORMAL CrO2 Fe-Cr
METER ADJ
NORMAL
R158
L104
R156
R157
R151

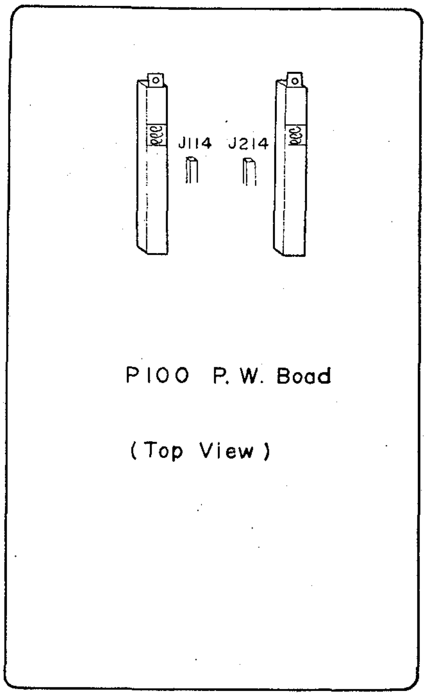
6. Bias Trap Adjustment

SET UP

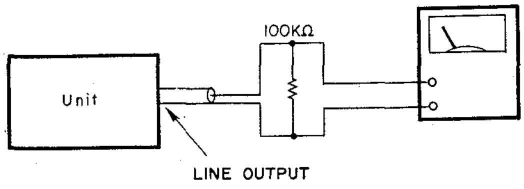
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Level control position:- Maximum.
3. TAPE selector switch position:- CrO_2.

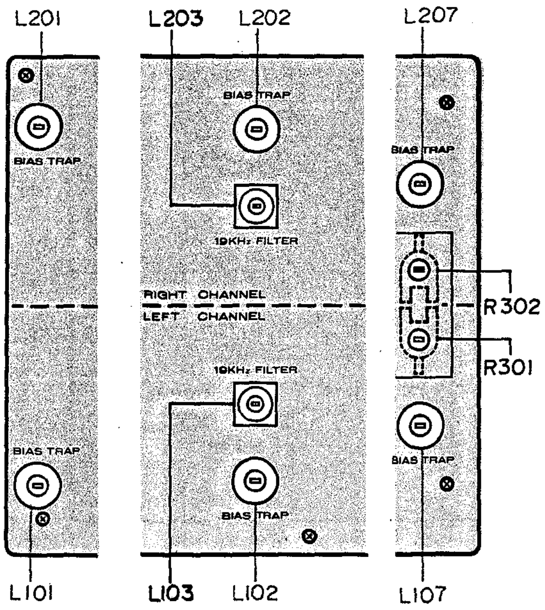
PROCEDURES

1. Set up the tape deck in the recording mode of operation.
2. Connect the VTVM to J114 and J214. Adjust L101 and L201 for minimum VTVM read.
3. In turn, connect the VTVM to R171 and R271. Adjust L107 and L207 for minimum VTVM read.
4. Adjust L102 and L202 for minimum leak bias at the LINE OUTPUT terminal.


J114
J214
P100 P. W. Boad
(Top View)

Mode: record


VTVM
100KΩ
Unit
LINE OUTPUT


L201
L203
L202
L207
BIAS TRAP
19KHz FILTER
RIGHT CHANNEL
LEFT CHANNEL
R302
R301
L101
L103
L102
L107

CAUTIONS

1. If the leak bias is less than the specified value, the bias trap needs not to be adjusted since the adjusting coil is factory preset.
2. The adjusting rod used should be non-metalic.

7. 19kHz Filter Adjustment

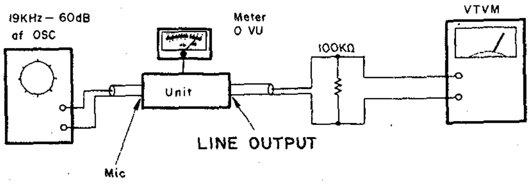
SET UP

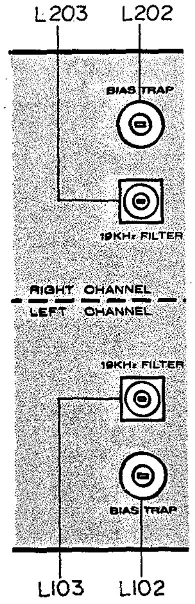
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input connection:- 19kHz, –60dB signal to MIC terminal.
3. TAPE selector switch:- NORMAL.
4. Output terminal: LINE OUTPUT.
5. Load:- Measuring instrument input impedance.

PROCEDURES

1. Connect the 19kHz, –60dBV input signal to the MIC terminal. Adjust the level control for 0VU.
2. In turn, turn the MPX Filter switch to the ON position. Adjust L103 and L203 for minimum output level at the LINE OUTPUT terminal.
3. Proceed both for the right and left channels in the same manner.

Mode: record


19KHz – 60dB
of OSC
Meter
0 VU
Unit
100KΩ
VTVM
LINE OUTPUT
Mic


L203
L202
BIAS TRAP
19KHz FILTER
RIGHT CHANNEL
LEFT CHANNEL
19KHz FILTER
BIAS TRAP
L103
L102

CAUTIONS

1. The 19kHz input signal should be as precise as 19±0.5kHz.
2. If the filter characteristic is better than 15dB, the adjusting coil needs not to be adjusted since it is factory set.

8. Recording Bias Current Adjustment (Temporal)

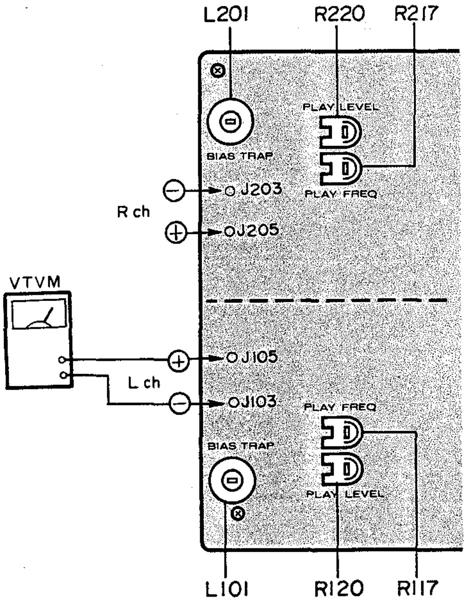
SET UP

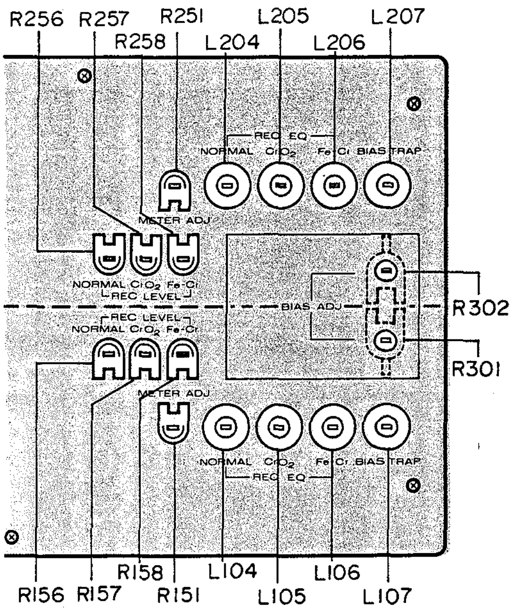
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch:- NORMAL.

PROCEDURES

1. Set up the tape deck in the recording mode of operation. Connect the VTVM to J105, J103 (Lch) and J205, J203 (Rch). Adjust the semifixed resistor R301 and R302 for 58mV VTVM read.
2. Proceed both for the right and left channels in the same manner.
3. For the tape deck equipped with the TAPE selector switch, make certain that the VTVM reads approximately 85mV with it set to the CrO_2 position.
4. When the TAPE selector switch is set at the NORMAL position, the leaf switch interlocked with the automatic tape selector lever, or CrO_2 tape detecting lever, will turn off.

Mode: record


L201
R220
R217
BIAS TRAP
PLAY LEVEL
PLAY FREQ
J203
R ch
J205
VTVM
J105
L ch
J103
PLAY FREQ
BIAS TRAP
PLAY LEVEL
L101
R120
R117


R256
R257
R251
L205
L207
R258
L204
L206
REC EQ
NORMAL
CrO2
Fe-Cr
BIAS TRAP
METER ADJ
NORMAL CrO2 Fe-Cr
REC LEVEL
BIAS ADJ
R302
REC LEVEL
NORMAL CrO2 Fe-Cr
R301
METER ADJ
NORMAL
CrO2
Fe-Cr
BIAS TRAP
REC EQ
R158
L104
L106
R156
R157
R151
L105
L107

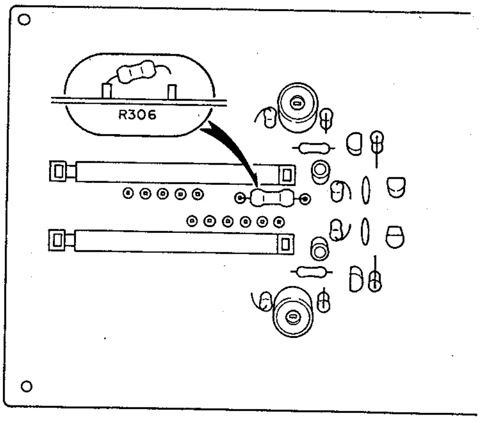
9. Recording Equalizer Adjustment

SET UP

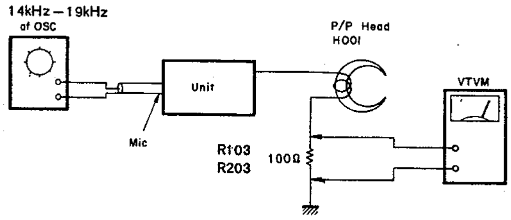
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input level:- 20dB lower than –60dB.

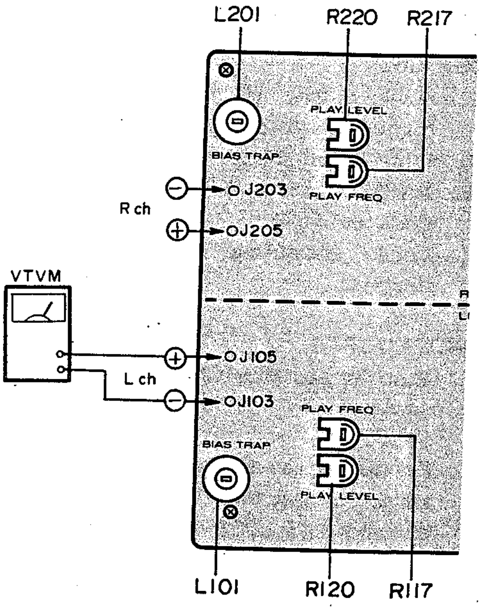
PROCEDURES

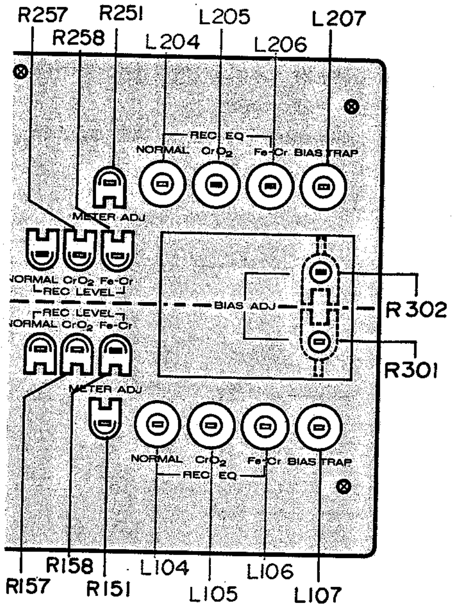
1. Stop the recording bias current oscillation by disconnecting the bias circuit +B resistor (R306).
2. Set up the tape deck to the normal recording state. Reduce the input level by 20dB.
3. Set the TAPE selector switch to the NORMAL position. Set the audio-frequency oscillator to 14kHz. Connect the VTVM to J105, J103 (L ch) and J205, J203 (R ch). Adjust L104 and L204 for maximum VTVM read.
4. In turn, set the TAPE selector switch to the CrO_2 position. Set the low-frequency oscillator to 17kHz. Connect the VTVM to J105, J103 (L ch) and J205, J203 (R ch). Adjust L105 and L205 for maximum VTVM read.
5. Set the TAPE selector switch to the Fe-Cr position. Set the audio-frequency oscillator to 19kHz. Connect the VTVM to J105, J103 (L ch) and J205, J203 (R ch). Adjust L106 and L206 for maximum VTVM read.
6. Proceed both for the right and left channels in the same manner.
7. After adjustment, release the recording bias current.



Mode: record


14kHz – 19kHz
af OSC
Mic
Unit
P/P Head
H001
R103
R203
100Ω
VTVM


L201
R220
R217
PLAY LEVEL
BIAS TRAP
PLAY FREQ
J203
J205
R ch
VTVM
J105
J103
L ch
PLAY FREQ
BIAS TRAP
PLAY LEVEL
L101
R120
R117


R257
R251
R258
L204
L205
L206
L207
REC EQ
NORMAL
CrO2
Fe-Cr
BIAS TRAP
METER ADJ
NORMAL CrO2 Fe-Cr
REC LEVEL
BIAS ADJ
R302
R301
REC LEVEL
NORMAL CrO2 Fe-Cr
METER ADJ
NORMAL
CrO2
Fe-Cr
BIAS TRAP
REC EQ
R157
R158
R151
L104
L105
L106
L107

CAUTION

The adjusting rod should be non-metalic.

10. Recording Current Adjustment (Temporal)

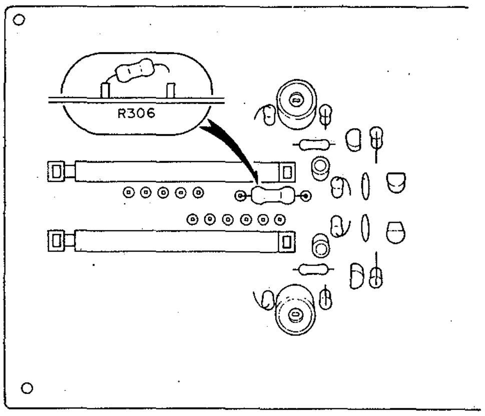
SET UP

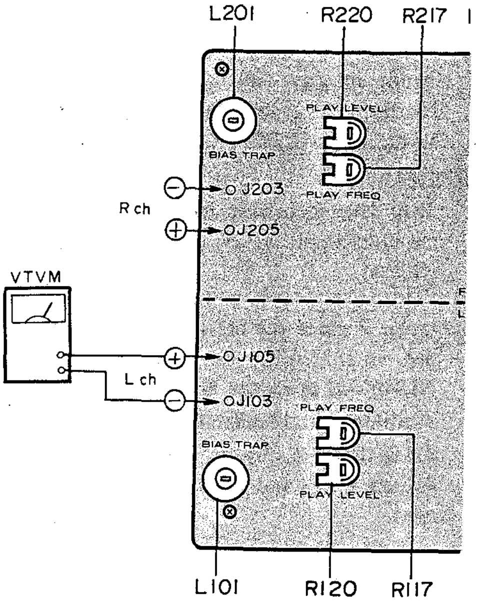
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input signal:- 1kHz, –60dB signal.
3. TAPE selector switch positions:- NORMAL, CrO_2 and Fe-Cr.
4. Load:- Measuring instrument input impedance.

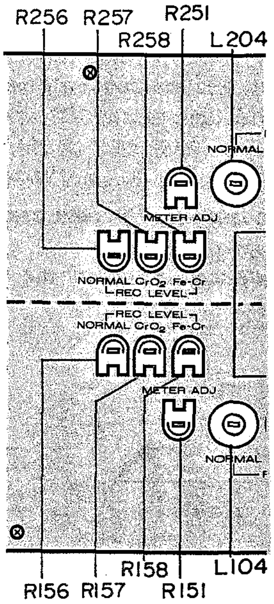
PROCEDURES

1. Stop the recording bias current oscillation by disconnecting the bias circuit +B resistor (R306).
2. Set up the tape deck to the normal recording state. Connect the VTVM to J105, J103 (L ch) and J205, J203 (R ch). Adjust the semi-fixed resistors R156 and R256 (for NORMAL) R157 and R257 (for CrO_2) and R158 and R258 (for Fe-Cr) until the VTVM reads 4.4mV (for NORMAL), 7mV (for CrO_2) and 4.6mV (for Fe-Cr), respectively.
3. Proceed both for the right and left channels in the same manner.
4. After adjustment, release the recording bias current.

Mode: record




L201
R220
R217
PLAY LEVEL
BIAS TRAP
J203
PLAY FREQ
R ch
J205
VTVM
J105
L ch
J103
PLAY FREQ
BIAS TRAP
PLAY LEVEL
L101
R120
R117


R256
R257
R251
R258
L204
NORMAL
METER ADJ
NORMAL CrO2 Fe-Cr
REC LEVEL
REC LEVEL
NORMAL CrO2 Fe-Cr
METER ADJ
NORMAL
R158
L104
R156
R157
R151

11. Reocrd-Playback Frequency Response Adjustment

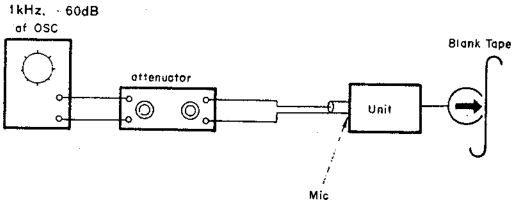
SET UP

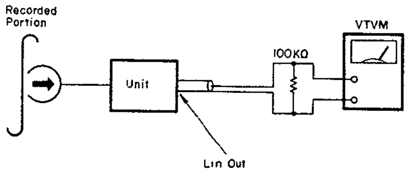
1. Power voltage:- 50 ot 60Hz AC voltage rated for the unit to be used in a market country.
2. Input signal:- 1kHz, –60dB with –20dB referenced as 0VU.
3. TAPE selector switch:- Fe-Cr.
4. Output terminal:- LINE OUT.
5. Load:- Measuring instrument input impedance.
6. Test tape used:- SONY Fe-Cr.

PROCEDURES

1. Connect the input signal to the MIC terminal. Set up the tape deck to the normal recording state.
2. In turn, reduce the input level by 20dB with the use of the attenuator. Record the 1 and 10kHz tones.
3. Play the 1kHz, 20dB-down recorded tone back as 0dB. Adjust the recording bias current until the 10kHz response is within ±1.5dB as referenced to the 1kHz, 0dB response.
4. Proceed both for the right and left channels in the same manner.
5. If the recording bias current is reduced in the above adjustment, be sure to measure the distortion.

Mode: record





12. Record-Playback Output Level Adjustment

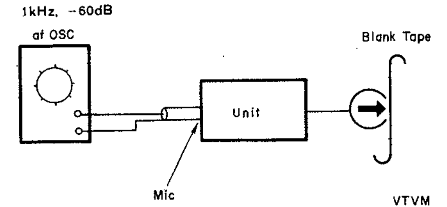
SET UP

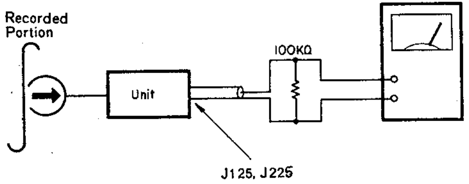
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input:- 1kHz, –60dB signal.
3. TAPE selector switch position:- NORMAL, CrO_2 and Fe-Cr.
4. Output terminal:- MAIN P.W. Board (P100) J125 and J225.
5. Load:- Measuring instrument input impedance.
6. Test tape used:- TDK DC-60, KRC-60 and SONY Fe-Cr.

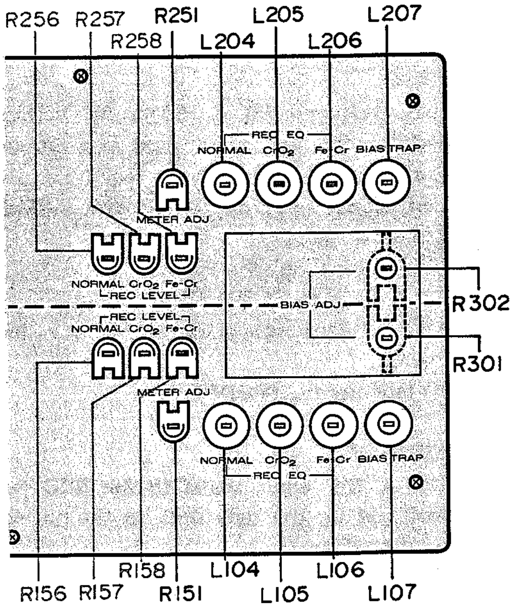
PROCEDURES

1. Connect the 1kHz, –60dB input signal to the MIC terminal. Set up the tape deck to the normal recording state.
2. Adjust the REC LEVEL semi-fixed resistor until the recorded signal is reproduced at 460mV ±0.5dB.
3. Proceed for the NORMAL, CrO_2 and Fe-Cr positions each in the same manner.
4. The semi-fixed resistors to be adjusted are:
   R156 and R256 for the NORMAL position.
   R157 and R257 for the CrO_2 position.
   R158 and R258 for the Fe-Cr position.

Mode: record


1kHz, –60dB
at OSC
Blank Tape
Unit
Mic


Recorded Portion
VTVM
100KΩ
Unit
J125, J225


R256
R257
R251
L205
L207
R258
L204
L206
REC EQ
NORMAL
CrO_2
Fe-Cr
BIAS TRAP
METER ADJ
NORMAL CrO_2 Fe-Cr
REC LEVEL
BIAS ADJ
R302
REC LEVEL
NORMAL CrO_2 Fe-Cr
R301
METER ADJ
NORMAL
CrO_2
Fe-Cr
BIAS TRAP
REC EQ
R158
L104
L106
R156
R157
R151
L105
L107

CAUTION

1. If the bias current is changed, be sure to perform the above adjustment.

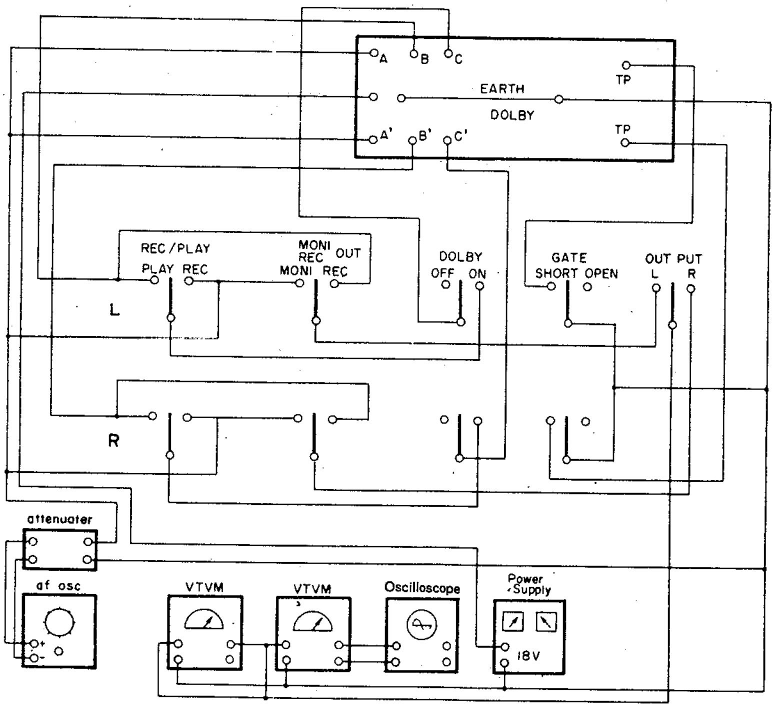
13. Dolby Circuit Adjustment

A) Encoder Circuit

1. Set the selector switch to the ENCODER (recording) position.
2. Adjust the LAW control for maximum positive potential applied to the source of the FET.
3. Turn the NOISE REDUCTION switch to the OFF position. Ground the gate of the FET.
4. Connect and adjust a 5kHz input signal for 17.5mV level at the MON. OUT terminal.
5. Note the output level at the REC. OUT terminal. Let the output level be 0dB as reference level.
6. Turn the NOISE REDUCTION switch to the ON position. Adjust the GAIN control until the output level at the REC. OUT terminal increases by 10 + 0.25dB as compared with the one measured in Step (5) above (0dB).
7. Open the gate of the FET. Adjust the LAW control until the output level at the REC. OUT terminal decreases by 2 + 0.25dB as compared with the 0dB reference level.

B) Decoder Circuit

1. Set the selector switch to the DECODER (playback) position.
2. Turn the NOISE REDUCTION switch to the OFF position. Ground the gate of the FET.
3. Connect and adjust the 5kHz input signal for 4.4mV level at the MON. OUT terminal.
4. Make certain that the output level at the MON. OUT terminal is reduced by 10dB ± 0.5dB when the NOISE REDUCTION switch is turned to the ON position.
5. Open the gate of the FET. Make certain that the signal level at the MON. OUT terminal is 17.5mV ± 0.5dB.
6. If the signal level is out of the above permissible range, repeat the adjustment beginning with the encoder circuit, not from the decoder circuit at all.


A
B
C
TP
EARTH
DOLBY
A'
B'
C'
TP
REC/PLAY
PLAY REC
MONI REC OUT
MONI REC
L
DOLBY
OFF ON
GATE
SHORT OPEN
OUT PUT
L R
R
attenuater
af osc
VTVM
VTVM
Oscilloscope
Power Supply
18V

14. Tape Speed Measurement

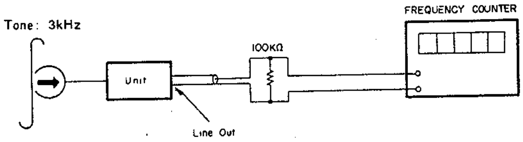
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Output terminal:- LINE OUT.
3. Test tape used:- MTT-111.
4. Set position:- Horizontal

PROCEDURES

1. Play the wound-up end of the test tape MTT-111 back. Read the frequency counter indication.

Mode: playback



STANDARD

Tape speed:- 4.8cm/sec +2, –2%.
Frequency: 2940 to 3060Hz.

CAUTION

The tape deck should be leveled as specified for this measurement.

15. Wow and Flutter Measurement

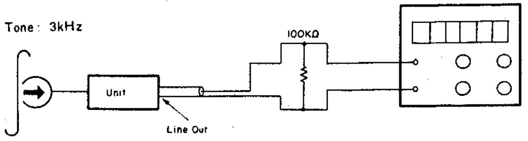
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Output terminal:- LINE OUT.
3. Load:- Measuring instrument input impedance.
4. Test tape used:- MTT-111.
5. Set position:- Horizontal.
6. Wow & flutter meter function switch:- NAB UNWTD.

PROCEDURES

1. Play the test tape MTT-111 back. Read the wow & flutter meter indication.

Mode: playback



STANDARD

Less than NAB 0.25% in rms.

CAUTION

The measurement should be performed at the wound-up end of the test tape.

16. Playback Output Level Measurement (at LINE OUT)

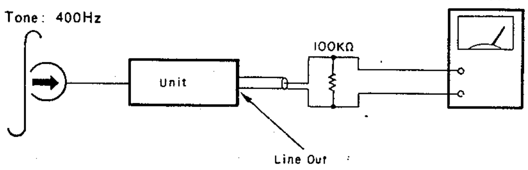
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position: NORMAL.
3. Load:- Measuring instrument input impedance.
4. Output terminal:- LINE OUT.
5. Test tape used:- MTT-150.

PROCEDURES

1. Play the test tape back in the normal playback state. Read the VTVM indication.
2. Proceed both for the right and left channels in the same manner.

Mode: playback



STANDARD

Within 900mV ±3dB.

17. Playback Signal-to-Noise Ratio Measurement

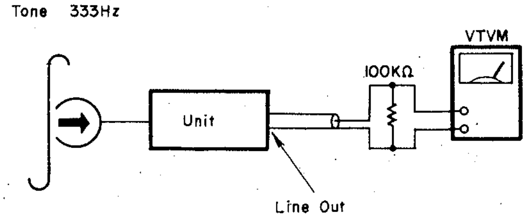
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Load:- Measuring instrument input impedance.
3. Measuring output terminal:- LINE OUT.
4. Test tape used:- MTT-112 (333Hz tone).
5. TAPE selector switch position:- NORMAL, CrO_2 and Fe-Cr.

PROCEDURES

1. Load the test tape MTT-112. Set up the tape deck to the normal playback state.
2. Read playback output as a 0dB reference. Then playback blank tape and note the output level drop in dB.
3. Proceed both for the right and left channels in the same manner.
4. Repeat the above measurement for each TAPE selector switch position.

Mode: playback



STANDARD

Greater than 45dB.

CAUTIONS

1. Arrange the tape deck power cord for minimum hum component.
2. Effect by induction noises should be minimized for the measurement.
3. When playing the standard reference level tape MTT-112 back, the VU meter indication is close to +2.5 VU and is used as the reference level for the signal-to-noise ratio measurement.

18. Playback Frequency Response Measurement

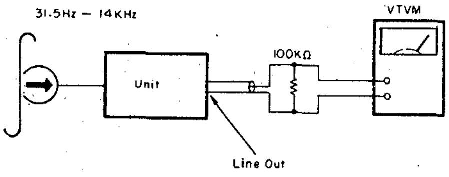
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position:- NORMAL and CrO_2 or Fe-Cr.
3. Load:- Measuring instrument input impedance.
4. Measuring output teminal:- LINE OUT.
5. Test tape used:-
   MTT-116U (for NORMAL).
   MTT-116K (for CrO_2 or Fe-Cr).

PROCEDURES

1. Play the test tape MTT-116U and –116K back. Let the 315Hz output level be 0dB as reference level.
2. Read the 40Hz and 10kHz output level differences from the 315Hz, 0dB reference level.
3. Proceed both for the right and left channels in the same manner.
4. For the above measurement, use the test tape MTT-116U for the NORMAL position and MTT-116K for the CrO_2 or Fe-Cr.

Mode: playback



STANDARD

In reference to the 315Hz, 0dB signal output level,

+3dB to –5dB at 40Hz.
+3dB to –6dB at 10kHz.

CAUTION

Since the test tapes used may involve some head azimuth difference, the head azimuth should be corrected at the highest frequency of each test tape before measurement.

19. Record-Playback Output Level Measurement (at LINE OUT)

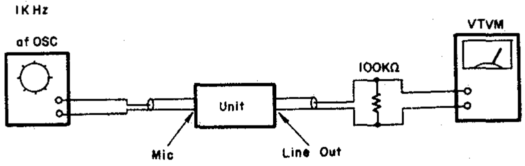
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input: 1kHz, –60dB signal.
3. Load:- Measuring instrument input impedance.
4. Level control position:- SRL for recording operation.
5. TAPE selector switch position:- NORMAL, CrO_2 and Fe-Cr.
6. Measuring output terminal:- LINE OUT.
7. Cassette tape used:- TDK DC-60, KRC-60 and SONY Fe-Cr.

PROCEDURES

1. Record the 1kHz, –60dB signal in the normal recording state.
2. Play the recorded signal back. Read the VU meter indication.
3. Proceed for the NORMAL, CrO_2 and Fe-Cr positions each in the same manner.
4. Proceed both for the right and left channels in the same manner.

Mode: reocrd



STANDARDS

1.	NORMAL position:	730mV ± 3dB.
2.	CrO_2 position:	730mV ± 3dB.
3.	Fe-Cr position:	730mV ± 3dB.

20. Record-Playback, Harmonic Distortion Measurement

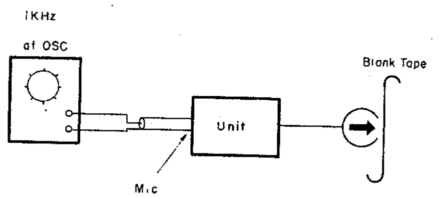
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input:- 1kHz, –60dB signal.
3. Playback output level:- Same as the recorded signal level.
4. Load:- Measuring instrument input impedance.
5. Measuring output terminal:- LINE OUT.
6. Cassette tape used:- TDK DC-60, KRC-60 and SONY Fe-Cr.

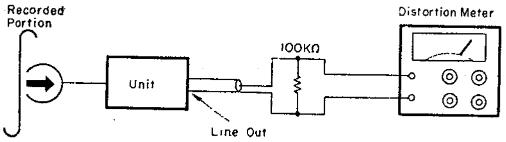
PROCEDURES

1. Record the 1kHz signal in the normal recording state.
2. Play the recorded signal back in the normal playback state. Calibrate the harmonic distortion meter to 100% at the INPUT CONT. Adjust the adjusting knob for minimum meter pointer deflection, and read the harmonic distortion.
3. Proceed both for the right and left channels in the same manner.
4. Proceed for the NORMAL, CrO_2 and Fe-Cr positions each in the same manner.

Mode: record



Mode: playback



STANDARDS

1. Less than 4% for the NORMAL and Fe-Cr positions.
2. Less than 4.5% for the CrO_2 position.

CAUTIONS

1. Be sure to demagnetize the heads as the measured values may deviate from the accurate values.
2. Note that excessive wow and flutter also causes deviation of the measured values.

21. Record-Playback Signal-to-Noise Ratio Measurement

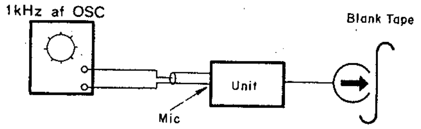
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input:- 1kHz, –60dB signal.
3. Playback output level:- Same as the recorded signal level.
4. Load:- Measuring instrument input impedance.
5. Measuring output terminal:- LINE OUT.
6. Cassette tape used:- TDK DC-60, KRC-60 and SONY Fe-Cr.

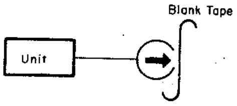
PROCEDURES

1. Record the 1kHz signal in the normal recording state.
2. Disconnect the input signal from the microphone jack. In this state, record no signal.
3. Play the 1kHz signal back in the normal playback state. Let the output level be 0dB as reference level.
4. Read difference between the recorded 0dB reference output and no-signal output levels.
5. Proceed both for the right and left channels in the same manner.
6. Set the DOLBY switch to the ON position, and proceed with similar measurement with the use of the high-pass filter.

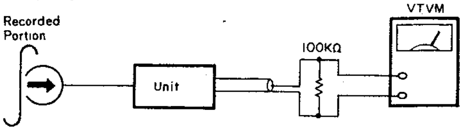
Mode: record



Mode: record



Mode: playback



STANDARDS

1. Greater than 52dB for the ON position of the DOLBY switch.
2. Greater than 43dB for the OFF position of the DOLBY switch.

CAUTION

Arrange the tape deck power cord for minimum hum component.

22. Record-Playback Frequency Response Measurement

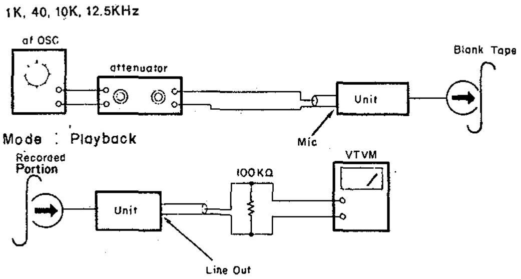
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input:- 1kHz, –60dB signal with –20dB as OVU.
3. Playback output level:- Same as the recorded signal level.
4. Load:- Measuring instrument input impedance.
5. Measuring output terminal:- LINE OUT.
6. Cassette tape used:- TDK DC-60, KRC-60 and SONY Fe-Cr.

PROCEDURES

1. Record the 1kHz signal in the normal recording state. In turn, reduce the input level by 20dB with an attenuator. Then, record the 1kHz, 40Hz, 12kHz, and 13kHz signals.
2. Play the recorded 1kHz signal back in the normal playback state.
3. Let the 1kHz, –20dB-down signal level be 0dB as reference level. Read difference of the 40Hz, 10kHz and 12.5kHz signal output levels from the 1kHz signal 0dB reference level.
4. Proceed for the NORMAL, CrO_2 and Fe-Cr positions each in the same manner.
5. Proceed both for the right and left channels in the same manner.

Mode: record



STANDARDS

1. NORMAL position:
   +3dB to –6dB at 40Hz
   +3dB to –6dB at 10kHz
   with DOLBY switch at OFF.
2. CrO_2 position:
   +3dB to –6dB at 40Hz
   +3dB to –8dB at 12.5kHz
   with DOLBY switch at OFF.
3. Fe-Cr position:
   +3dB to –6dB at 40Hz
   +3dB to –6dB at 12.5 kHz
   with DOLBY switch at OFF.
4. NORMAL, CrO_2 and Fe-Cr positions:
   +3dB to –8dB at 40Hz
   +5dB to –8dB at 10kHz
   with DOLBY switch at ON.

23. Erasing Effect Measurement

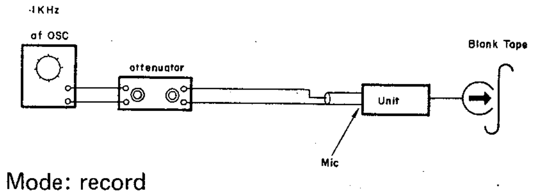
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input:- 1kHz, –60dB signal with +10dB as 0VU.
3. Playback output level:- Same as the recorded signal level.
4. Load:- Measuring instrument input impedance.
5. TAPE selector switch position:- NORMAL, CrO_2 and Fe-Cr.
6. Cassette tape used:- TDK DC-60, KRC-60 and SONY Fe-Cr.
7. Filter used:- 1kHz band-pass filter.

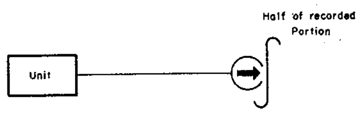
PROCEDURES

1. Record the 1kHz input signal in the normal recording state.
2. In turn, increase the input level by 10dB with the attenuator, and record it.
3. Rewind a half portion of the 10dB-up tape and record in no-signal state, or erase, on the portion with the input signal disconnected from the microphone jack.
4. Play back in the normal playback state the input signal recorded in the normal recording state.
5. In turn, let the 10dB-up recorded signal level be 0dB as reference level. Read difference of the level at the erased portion from the 0dB reference level.

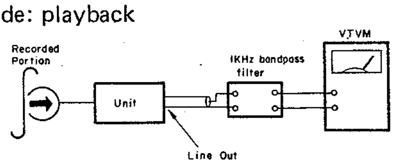
Mode: record



Mode: record



Mode: playback



STANDARD

Greater than 55dB.

24. Leak Bias Measurement

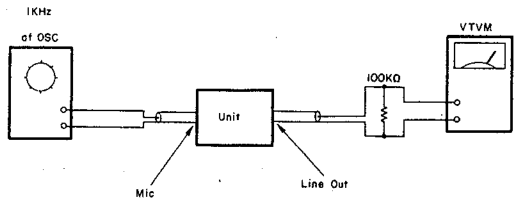
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input:- 1kHz, –60dB signal.
3. Load:- Measuring instrument input impedance.
4. Level control position:- SRL.
5. TAPE selector switch position:- NORMAL, CrO_2 and Fe-Cr.

PROCEDURES

1. Record the 1kHz input signal in the normal recording state. Let the monitor output level at the LINE OUT terminal be 0dB as reference level. Read difference of the output level having the input signal disconnected from the 0dB reference level.
2. Proceed both for the right and left channels in the same manner.

Mode: record



STANDARD

Lower than –45dB.

25. FM Deemphasis Measurement

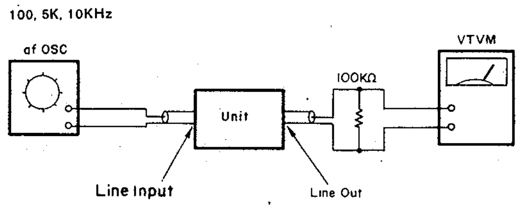
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input:- 100Hz, –10dB signal.
3. Input terminal:- LINE INPUT
4. Output terminal:- LINE OUT.
5. DOLBY FM switch position: ON
6. DOLBY switch position:- ON.
7. REC/PLAY switch position:- REC.

PROCEDURES

1. Connect the 100Hz, –10dBV input signal to the LINE INPUT terminal. Adjust the FM CAL control for 0VU output level with the DEEMPHASIS switch set at the FLAT position.
2. Let the above output level at the LINE OUT terminal be 0dB as reference level. Set the DEEMPHASIS switch to the 25μsec position and read output level differences of 5kHz and 10kHz to 100Hz.
3. Proceed both for the right and left channels in the same manner.

Mode: record



STANDARD

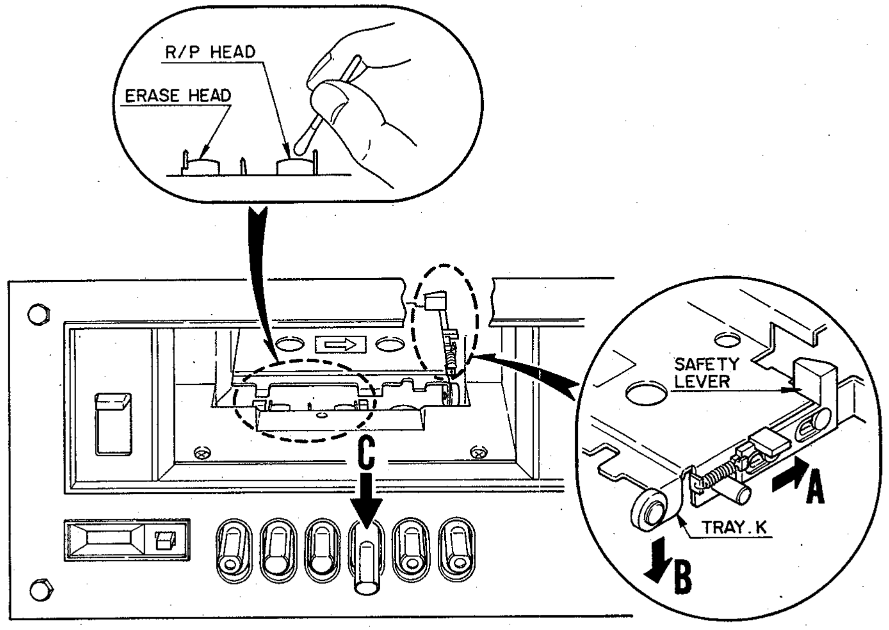
FREQ.	FOR U AND C	FOR N
5kHz	+6 ± 2dB	+3.5 ± 2dB
10kHz	+8.5 ± 2dB	+5 ± 2dB

NOTE

U: U.S.A.
C: Canada
N: Europe

6. HOW TO LOWER THE CASSETTE TRAY DOWN (WITHOUT CASSETTE TAPE)

To operate the 5020 in the playback mode of operation in cleaning or demagnetizing the heads, push the safety lever, which is located at the back right of the cassette compartment (A) all the way toward the rear panel using a pensil, small screwdriver or similar rod. While pressing the safety lever, then, push the cassette tray (B) down and depress the PLAY button (C) down.

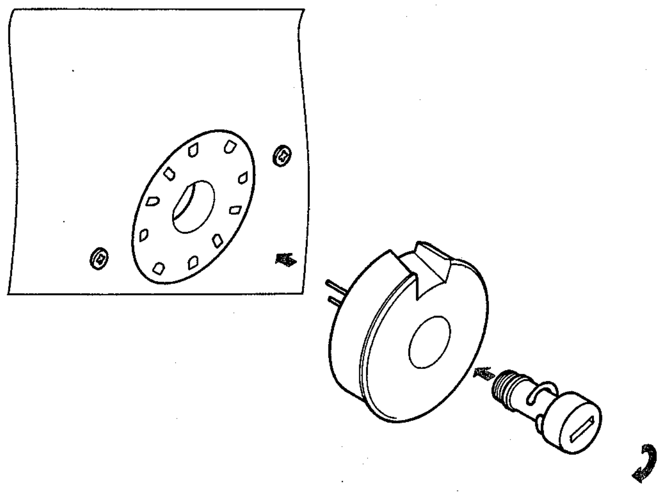


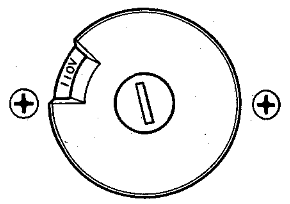
7. VOLTAGE CONVERSION (For European Model Only)

This Model is equipped with a universal power transformer to permit operation at either power source of 110, 120, 220 or 240 V AC, 50/60 Hz.

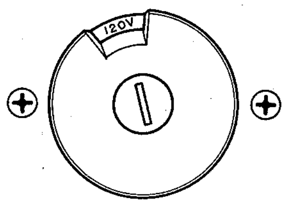
To convert the unit to a different power source voltage, change the plug as illustrated in the drawing below.

CAUTION: DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

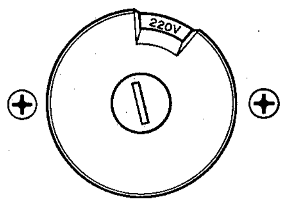




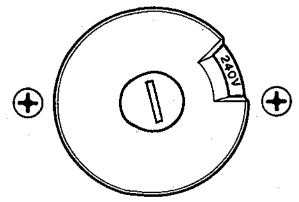
For 110V Operation



For 120V Operation

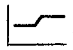
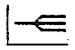
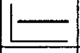
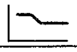
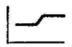
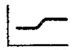
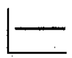
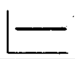
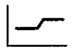
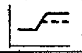
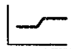
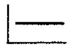
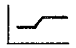
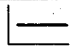
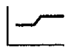
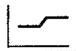
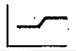
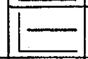
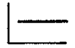
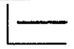
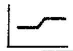
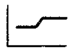
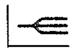
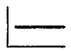
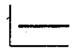
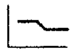


For 220V Operation

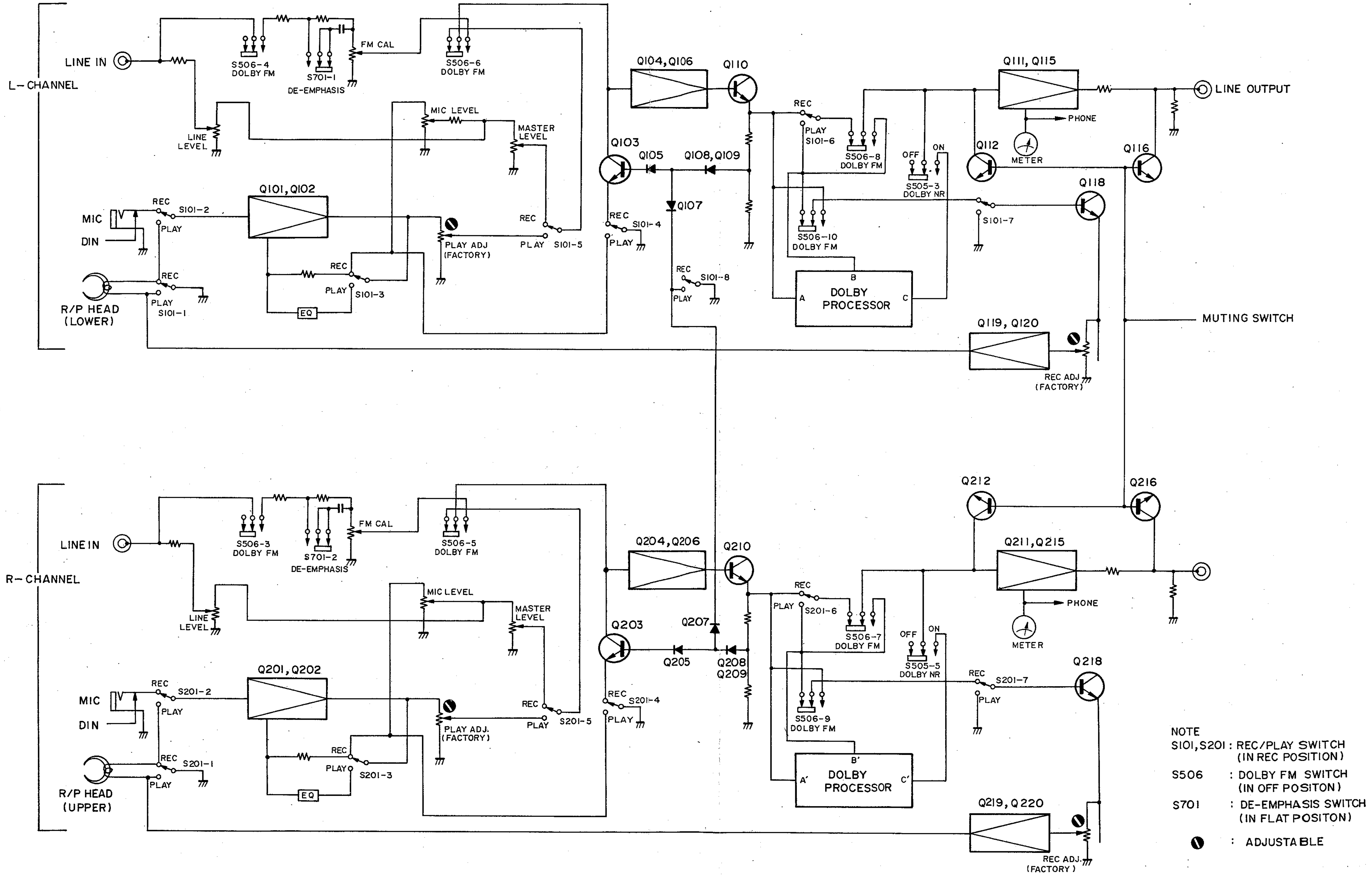


For 240V Operation

8. HOW TO USE 5020 DOLBY SYSTEM

					5020 Function Switches				Signal State			
Use	**Connections**	**Input**	**Deck Mode**	**Level Adj.**	**DOLBY NR**	**DOLBY FM**	**De-emphasis**	**Mic/ Line in**	**Input**	**Rec. Out Rec. Amp**	**Output**	**Result**
Play back	5020 LINE (Line output) – Amp AUX Tape In	Recorded Tape	Play	Output Level Cont. (Rear)	ON	OFF	–			–		Good
										–		Wrong
					OFF	OFF	–			–		Wrong
										–		Good
Record	Amp Tape Out/ Rec Out – 5020 LINE (Line Input)	LINE	Rec	Record Level Cont.	ON	OFF	–	Both position OK				Wrong
												Good
	Microphone – 5020 Mic	MIC		Master Level Cont. (Front)	OFF	OFF	–	Both position OK				Wrong
												Good
DOLBY FM	Tuner – 5020 LINE INPUT & 5020 LINE (Line Output) – Amp. AUX Tape in	LINE	Rec	FM CAL (Rear)	ON	ON	25μ					Good
												Wrong
Other Tape Recorder play CAL for Decode	Other Tape Recorder Output –5020 LINE INPUT (from Recorder)	LINE	STOP	Play CAL (Rear)	ON	ON	Flat		400Hz DOLBY TONE			Good

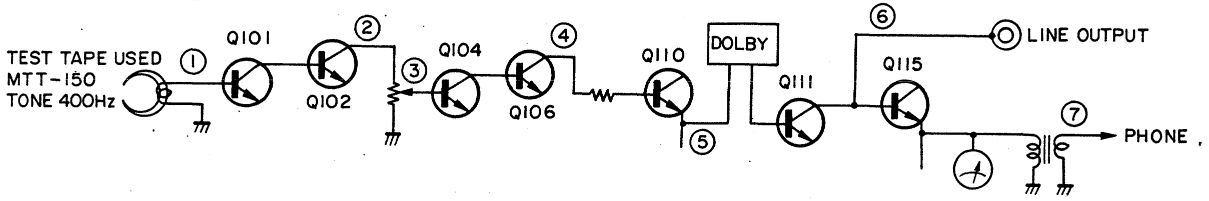
9. BLOCK DIAGRAM

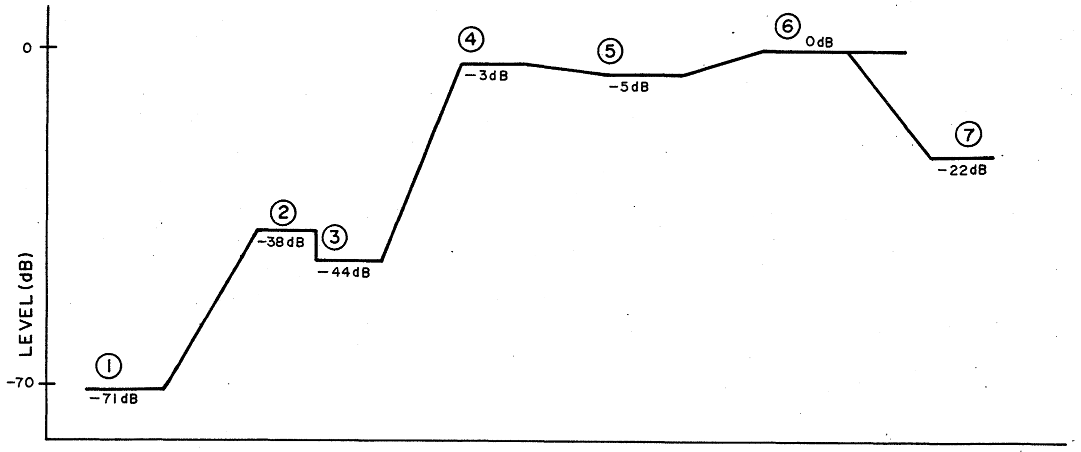

L-CHANNEL
LINE IN
S506-4
DOLBY FM
S701-1
DE-EMPHASIS
FM CAL
S506-6
DOLBY FM
LINE LEVEL
MIC LEVEL
MASTER LEVEL
MIC
DIN
REC
S101-2
PLAY
Q101, Q102
PLAY ADJ (FACTORY)
REC
PLAY
S101-5
R/P HEAD (LOWER)
REC
PLAY
S101-1
REC
PLAY
S101-3
EQ
Q104, Q106
Q110
Q103
Q105
Q108, Q109
Q107
REC
S101-4
PLAY
REC
S101-8
PLAY
REC
PLAY
S101-6
S506-8
DOLBY FM
OFF
ON
S505-3
DOLBY NR
S506-10
DOLBY FM
A
B
C
DOLBY PROCESSOR
Q111, Q115
LINE OUTPUT
PHONE
METER
Q112
Q116
Q118
S101-7
MUTING SWITCH
Q119, Q120
REC ADJ (FACTORY)
R-CHANNEL
LINE IN
S506-3
DOLBY FM
S701-2
DE-EMPHASIS
FM CAL
S506-5
DOLBY FM
LINE LEVEL
MIC LEVEL
MASTER LEVEL
MIC
DIN
REC
S201-2
PLAY
Q201, Q202
PLAY ADJ. (FACTORY)
REC
PLAY
S201-5
R/P HEAD (UPPER)
REC
S201-1
PLAY
REC
PLAY
S201-3
EQ
Q204, Q206
Q210
Q203
Q205
Q207
Q208
Q209
REC
S201-4
PLAY
REC
PLAY
S201-6
S506-7
DOLBY FM
OFF
ON
S505-5
DOLBY NR
S506-9
DOLBY FM
A'
B'
C'
DOLBY PROCESSOR
Q211, Q215
PHONE
METER
Q212
Q216
Q218
REC
S201-7
PLAY
Q219, Q220
REC ADJ. (FACTORY)

NOTE
S101, S201 : REC/PLAY SWITCH (IN REC POSITION)
S506 : DOLBY FM SWITCH (IN OFF POSITON)
S701 : DE-EMPHASIS SWITCH (IN FLAT POSITON)
● : ADJUSTABLE

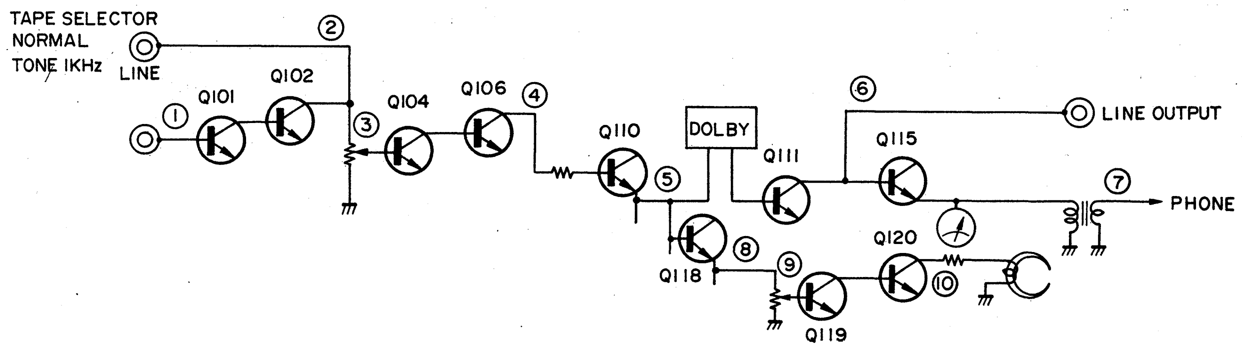
10. LEVEL DIAGRAMS

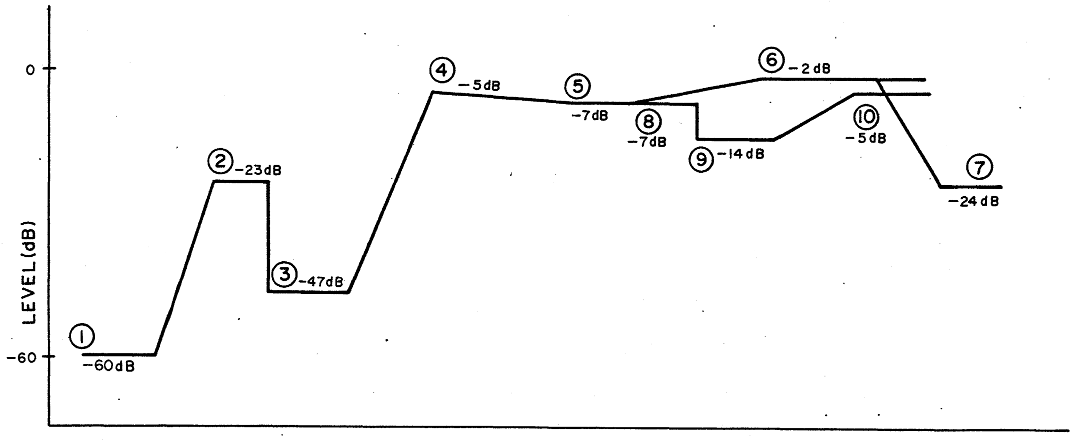
PLAYBACK


TEST TAPE USED
MTT-150
TONE 400Hz
①
Q101
Q102
②
③
Q104
Q106
④
Q110
⑤
DOLBY
Q111
⑥
Q115
LINE OUTPUT
⑦
PHONE



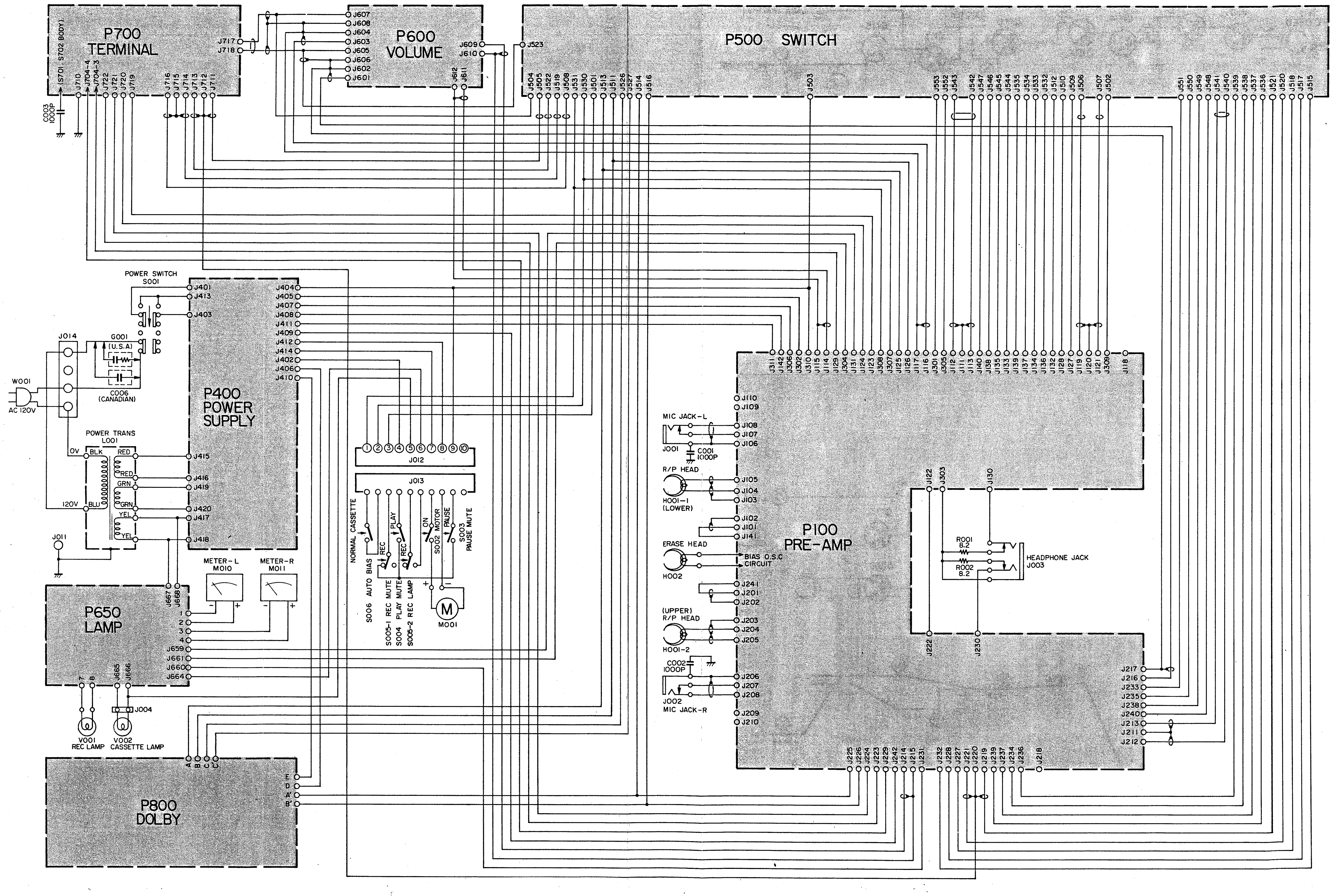
RECORD


TAPE SELECTOR
NORMAL
TONE 1KHz
LINE
②
①
Q101
Q102
③
Q104
Q106
④
Q110
⑤
DOLBY
Q111
⑥
Q115
LINE OUTPUT
⑦
PHONE
Q118
⑧
⑨
Q119
Q120
⑩

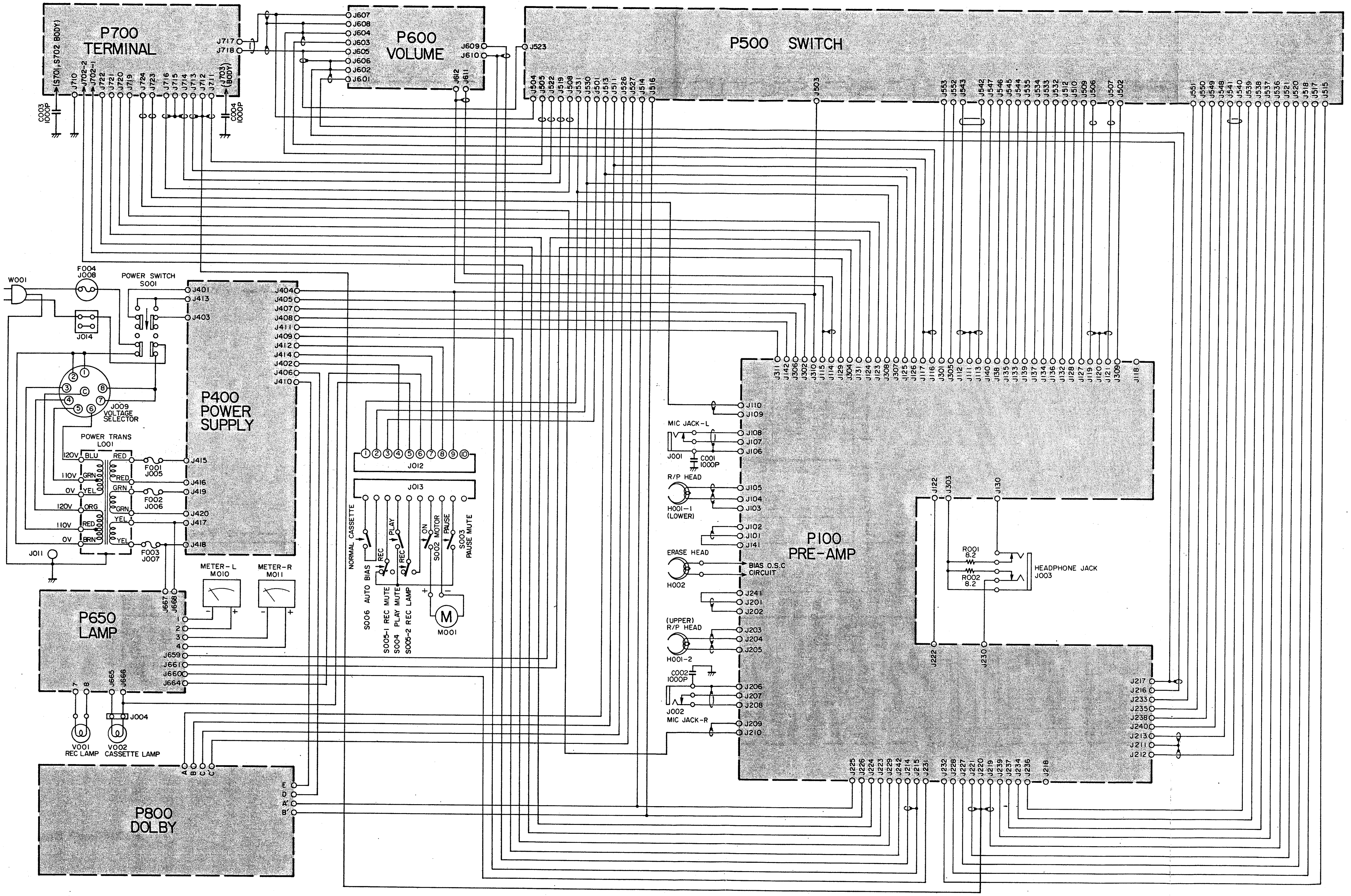


11. INTERCONNECTION DIAGRAMS

(A) for U.S.A. and Canada

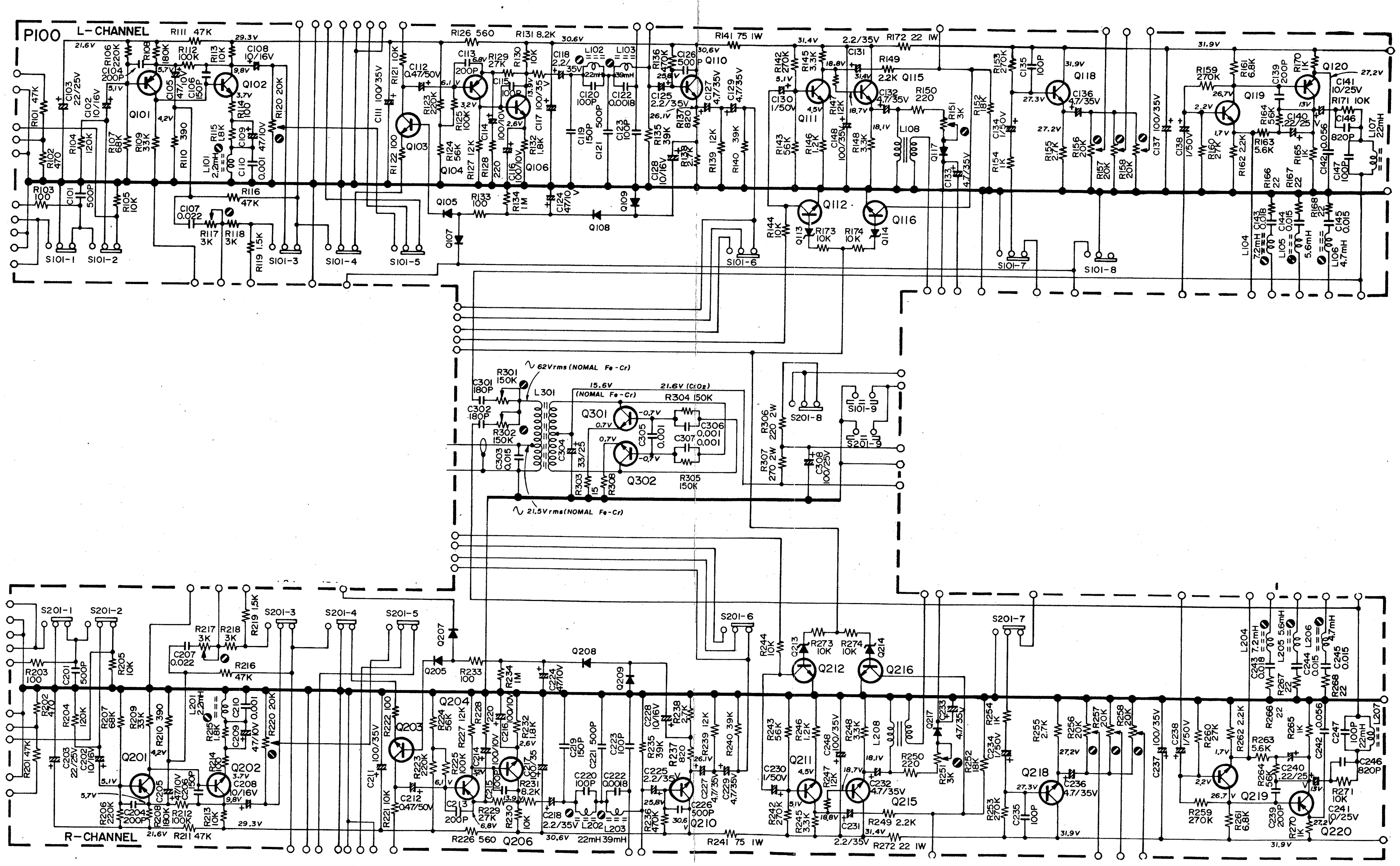

P700 TERMINAL
(S701, S702 BODY)
J717
J718
J710
J704-4
J704-3
J722
J721
J720
J719
J716
J715
J714
J713
J712
J711
C003 1000P
P600 VOLUME
J607
J608
J604
J603
J605
J606
J602
J601
J609
J610
J612
J611
P500 SWITCH
J523
J504
J505
J522
J519
J508
J531
J530
J501
J513
J511
J526
J527
J514
J516
J503
J553
J552
J543
J542
J547
J546
J545
J544
J535
J534
J533
J532
J512
J510
J509
J506
J507
J502
J551
J550
J549
J548
J541
J540
J539
J538
J537
J536
J521
J520
J518
J517
J515
POWER SWITCH
S001
J014
G001
(U.S.A)
C006
(CANADIAN)
W001
AC 120V
POWER TRANS
L001
0V
BLK
RED
GRN
YEL
120V
BLU
J011
P400 POWER SUPPLY
J401
J413
J403
J404
J405
J407
J408
J411
J409
J412
J414
J402
J406
J410
J415
J416
J419
J420
J417
J418
J012
①②③④⑤⑥⑦⑧⑨⑩
J013
NORMAL CASSETTE
REC
PLAY
ON
MOTOR
PAUSE
S002 MOTOR
S003 PAUSE MUTE
S006 AUTO BIAS
S005-1 REC MUTE
S004 PLAY MUTE
S005-2 REC LAMP
M
M001
METER-L
M010
METER-R
M011
P650 LAMP
J667
J668
1
2
3
4
J659
J661
J660
J664
7
8
J665
J666
J004
V001
REC LAMP
V002
CASSETTE LAMP
P800 DOLBY
A
B
C
C'
E
D
A'
B'
P100 PRE-AMP
J311
J142
J306
J302
J310
J115
J114
J129
J304
J131
J124
J123
J308
J307
J125
J126
J117
J116
J301
J305
J112
J111
J113
J140
J138
J135
J139
J137
J134
J136
J132
J128
J127
J119
J120
J121
J309
J118
J110
J109
MIC JACK-L
J108
J107
J106
J001
C001 1000P
R/P HEAD
J105
J104
J103
H001-1
(LOWER)
J102
J101
J141
ERASE HEAD
BIAS O.S.C CIRCUIT
H002
J241
J201
J202
(UPPER)
R/P HEAD
J203
J204
J205
H001-2
C002 1000P
J206
J207
J208
J002
MIC JACK-R
J209
J210
J122
J303
J130
R001 8.2
R002 8.2
HEADPHONE JACK
J003
J222
J230
J217
J216
J233
J235
J238
J240
J213
J211
J212
J225
J226
J224
J223
J229
J242
J214
J215
J231
J232
J228
J227
J221
J220
J219
J239
J237
J234
J236
J218

(B) for Europe

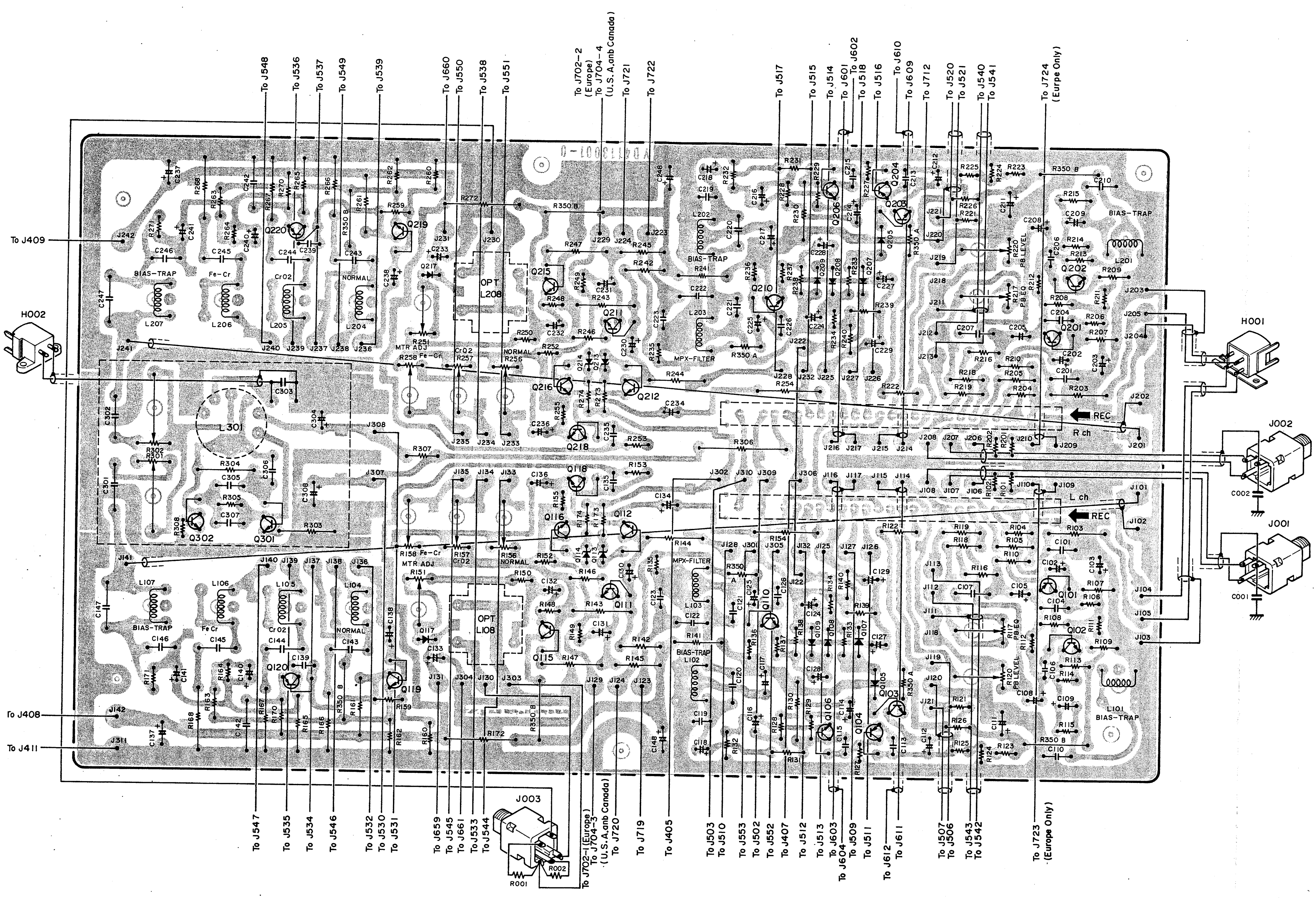


P700 TERMINAL
(S701, S702 BODY)
(J703) BODY
C003 1000P
C004 1000P
P600 VOLUME
P500 SWITCH
J523
W001
F004 J008
POWER SWITCH S001
J014
J009 VOLTAGE SELECTOR
POWER TRANS L001
120V
110V
0V
BLU
GRN
YEL
ORG
RED
BRN
F001 J005
F002 J006
F003 J007
J011
P400 POWER SUPPLY
J012
J013
NORMAL CASSETTE
S006 AUTO BIAS
S005-1 REC MUTE
S004 PLAY MUTE
S005-2 REC LAMP
REC
PLAY
ON
S002 MOTOR
PAUSE
S003 PAUSE MUTE
M
M001
METER-L M010
METER-R M011
P650 LAMP
V001 REC LAMP
V002 CASSETTE LAMP
J004
P800 DOLBY
P100 PRE-AMP
MIC JACK-L
J001
C001 1000P
R/P HEAD
H001-1 (LOWER)
ERASE HEAD
H002
BIAS O.S.C CIRCUIT
(UPPER) R/P HEAD
H001-2
C002 1000P
J002
MIC JACK-R
R001 8.2
R002 8.2
HEADPHONE JACK J003

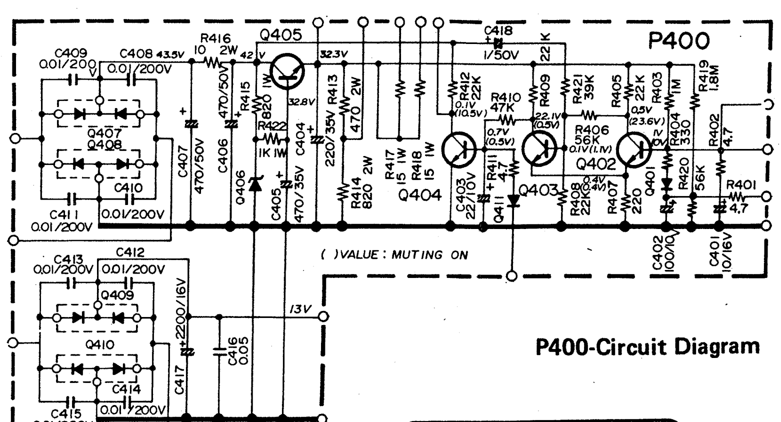
12. MOUNTING/SCHEMATIC DIAGRAMS


P100
L-CHANNEL
R-CHANNEL
Q101
Q102
Q103
Q104
Q105
Q106
Q107
Q108
Q109
Q110
Q111
Q112
Q113
Q114
Q115
Q116
Q117
Q118
Q119
Q120
S101-1
S101-2
S101-3
S101-4
S101-5
S101-6
S101-7
S101-8
S101-9
Q301
Q302
L301
R301 150K
R304 150K
R305 150K
R306 220 2W
R307 270 2W
C308 100/25V
S201-8
S201-9
62Vrms (NOMAL Fe-Cr)
21.5Vrms (NOMAL Fe-Cr)
15.6V
21.6V (CrO2)
Q201
Q202
Q203
Q204
Q205
Q206
Q207
Q208
Q209
Q210
Q211
Q212
Q213
Q214
Q215
Q216
Q217
Q218
Q219
Q220
S201-1
S201-2
S201-3
S201-4
S201-5
S201-6
S201-7
R111 47K
R211 47K
R126 560
R226 560
R131 8.2K
R141 75 1W
R241 75 1W
R172 22 1W
R272 22 1W
29.3V
30.6V
31.4V
31.9V
27.2V

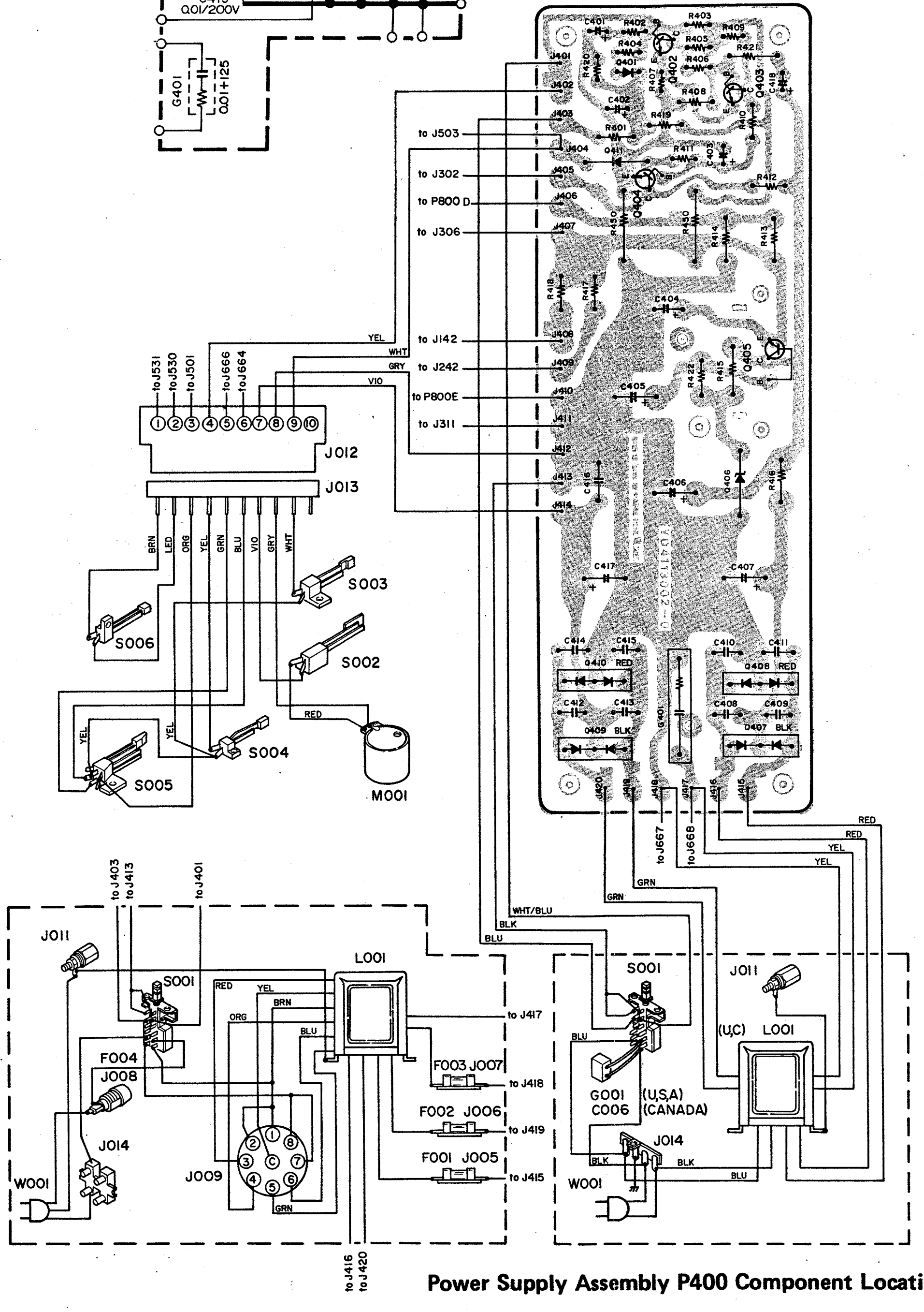
P100-Circuit Diagram


To J548
To J536
To J537
To J549
To J539
To J660
To J550
To J538
To J551
To J702-2 (Europe)
To J704-4 (U.S.A.and Canada)
To J721
To J722
To J517
To J515
To J514
To J601
To J602
To J518
To J516
To J610
To J609
To J712
To J520
To J521
To J540
To J541
To J724 (Eurpe Only)
To J409
H002
H001
J002
J001
C002
C001
REC
R ch
L ch
BIAS-TRAP
MPX-FILTER
OPT L208
OPT L108
MTR ADJ
NORMAL
Fe-Cr
CrO2
PB LEVEL
PB EQ
L301
To J408
To J411
J003
R001
R002
To J547
To J535
To J534
To J546
To J532
To J530
To J531
To J659
To J545
To J661
To J533
To J544
To J702-1 (Europe)
To J704-3 (U.S.A.and Canada)
To J720
To J719
To J405
To J503
To J510
To J553
To J502
To J552
To J407
To J512
To J513
To J604
To J603
To J509
To J511
To J612
To J611
To J507
To J506
To J543
To J542
To J723 (Europe Only)

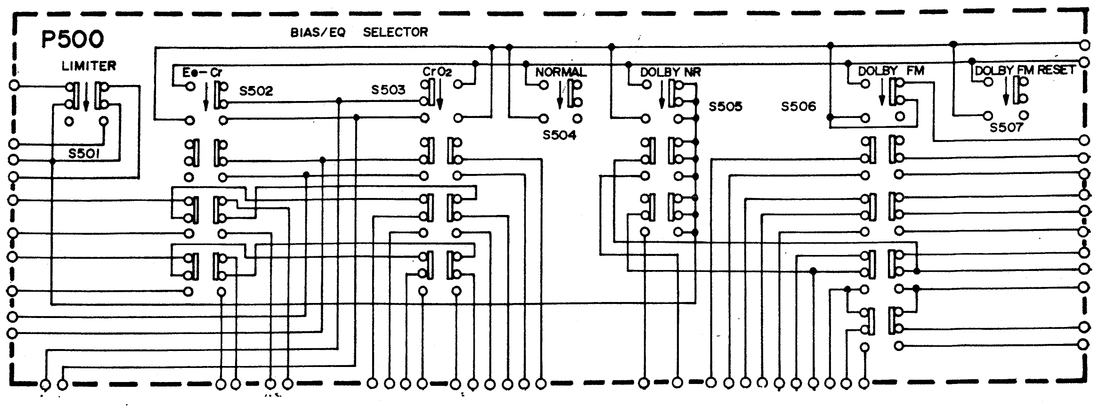
Pre-Amp. Assembly P100 Component Locations


P400
Q405
Q404
Q403
Q402
Q401
Q407
Q408
Q409
Q410
G401
( )VALUE : MUTING ON
13V

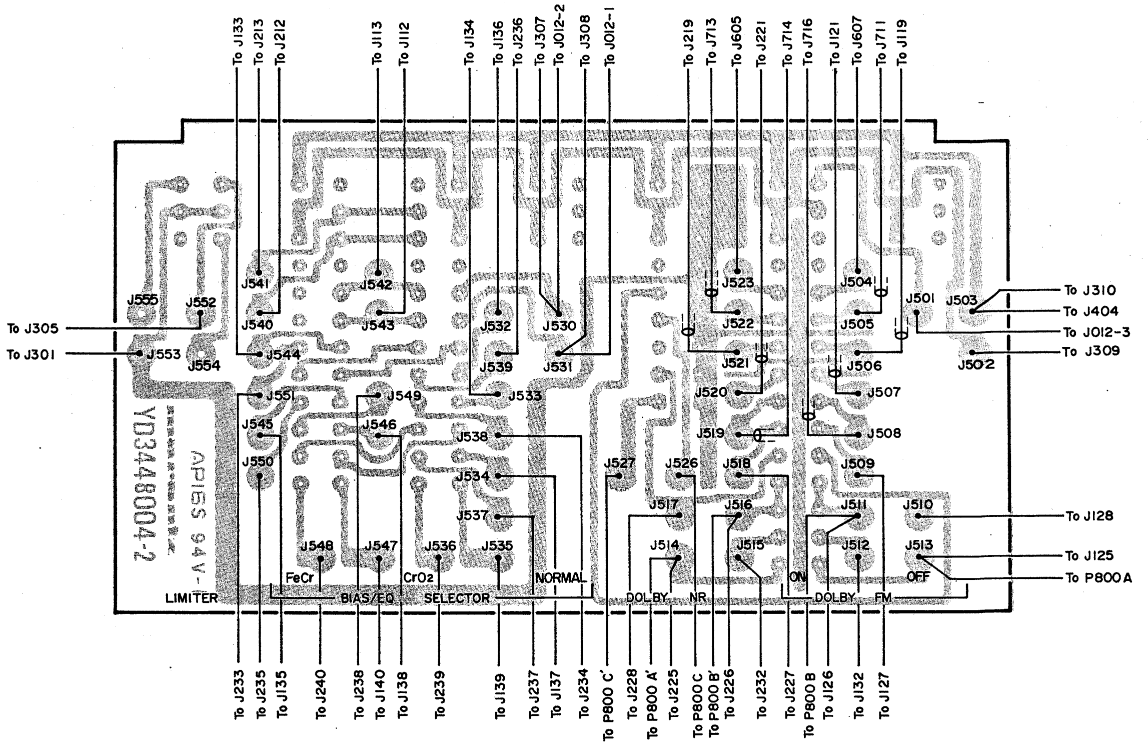
P400-Circuit Diagram


to J503
to J302
to P800 D
to J306
to J142
to J242
to P800E
to J311
J012
J013
S003
S006
S002
S004
S005
M001
J011
S001
L001
F004
J008
J014
J009
W001
F003 J007
F002 J006
F001 J005
to J417
to J418
to J419
to J415
to J416
to J420
to J667
to J668
G001 (U,S,A)
C006 (CANADA)
(U,C)

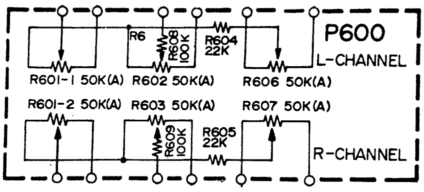
Power Supply Assembly P400 Component Locations


P500
LIMITER
BIAS/EQ SELECTOR
Fe-Cr
CrO2
NORMAL
DOLBY NR
DOLBY FM
DOLBY FM RESET
S501
S502
S503
S504
S505
S506
S507

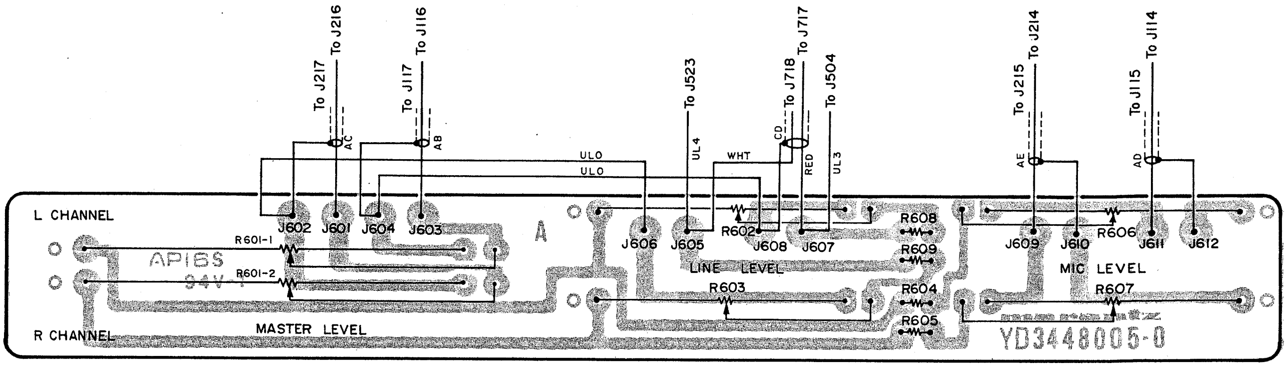
P500-Circuit Diagram


To J133
To J213
To J212
To J113
To J112
To J134
To J136
To J236
To J307
To J012-2
To J308
To J012-1
To J219
To J713
To J605
To J221
To J714
To J716
To J121
To J607
To J711
To J119
To J305
To J301
To J310
To J404
To J012-3
To J309
To J128
To J125
To P800A
To J233
To J235
To J135
To J240
To J238
To J140
To J138
To J239
To J139
To J237
To J137
To J234
To P800 C'
To J228
To P800 A'
To J225
To P800 C
To P800 B'
To J226
To J232
To J227
To P800 B
To J126
To J132
To J127
LIMITER
FeCr
CrO2
BIAS/EQ SELECTOR
NORMAL
DOLBY NR
ON
DOLBY FM
OFF
YD3448004-2

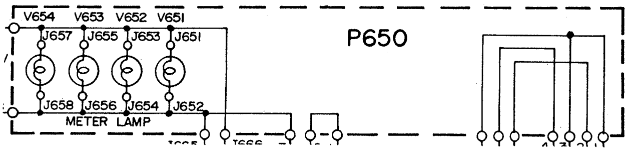
Switch Assembly P500 Component Locations


P600
L-CHANNEL
R-CHANNEL
R601-1 50K(A)
R602 50K(A)
R606 50K(A)
R601-2 50K(A)
R603 50K(A)
R607 50K(A)
R6
R608 100K
R604 22K
R609 100K
R605 22K

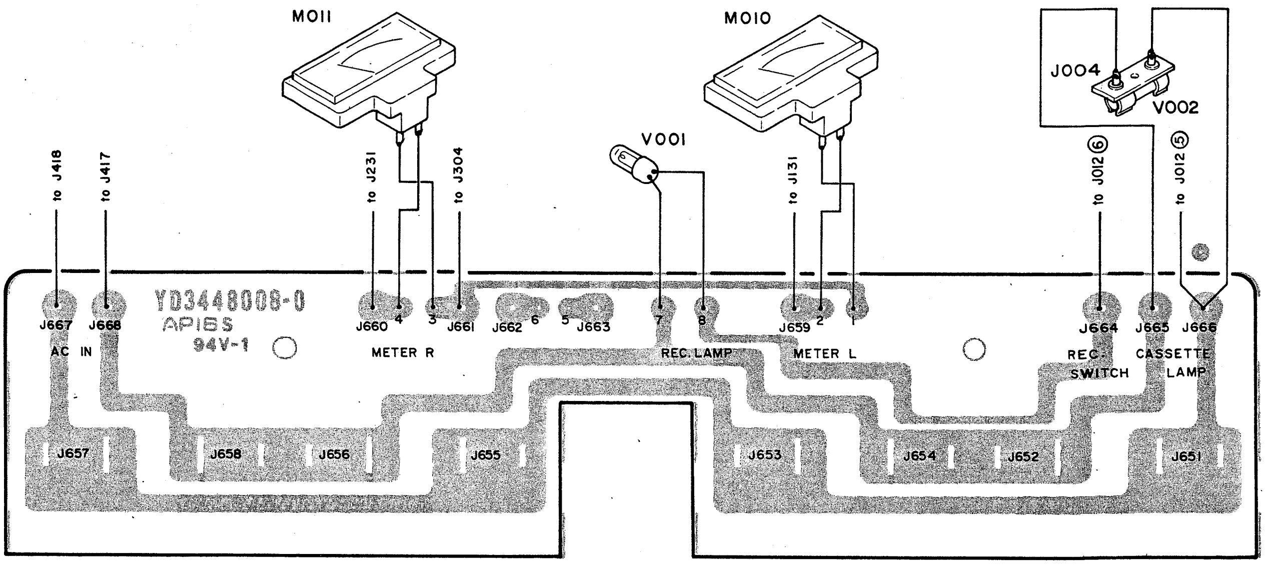
P600-Circuit Diagram


To J217
To J216
To J117
To J116
To J523
To J718
To J717
To J504
To J215
To J214
To J115
To J114
AC
AB
CD
AE
AD
ULO
ULO
UL4
WHT
RED
UL3
L CHANNEL
R CHANNEL
J602
J601
J604
J603
J606
J605
J608
J607
J609
J610
J611
J612
R601-1
R601-2
R602
R603
R604
R605
R606
R607
R608
R609
AP16S
94V
A
MASTER LEVEL
LINE LEVEL
MIC LEVEL
YD3448005-0

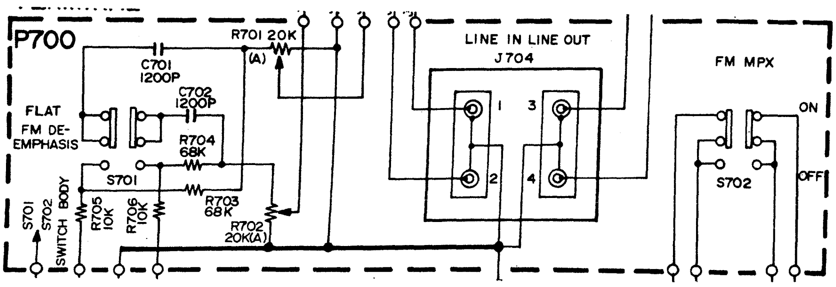
Volume Assembly P600 Component Locations


P650
V654
V653
V652
V651
J657
J655
J653
J651
J658
J656
J654
J652
METER LAMP

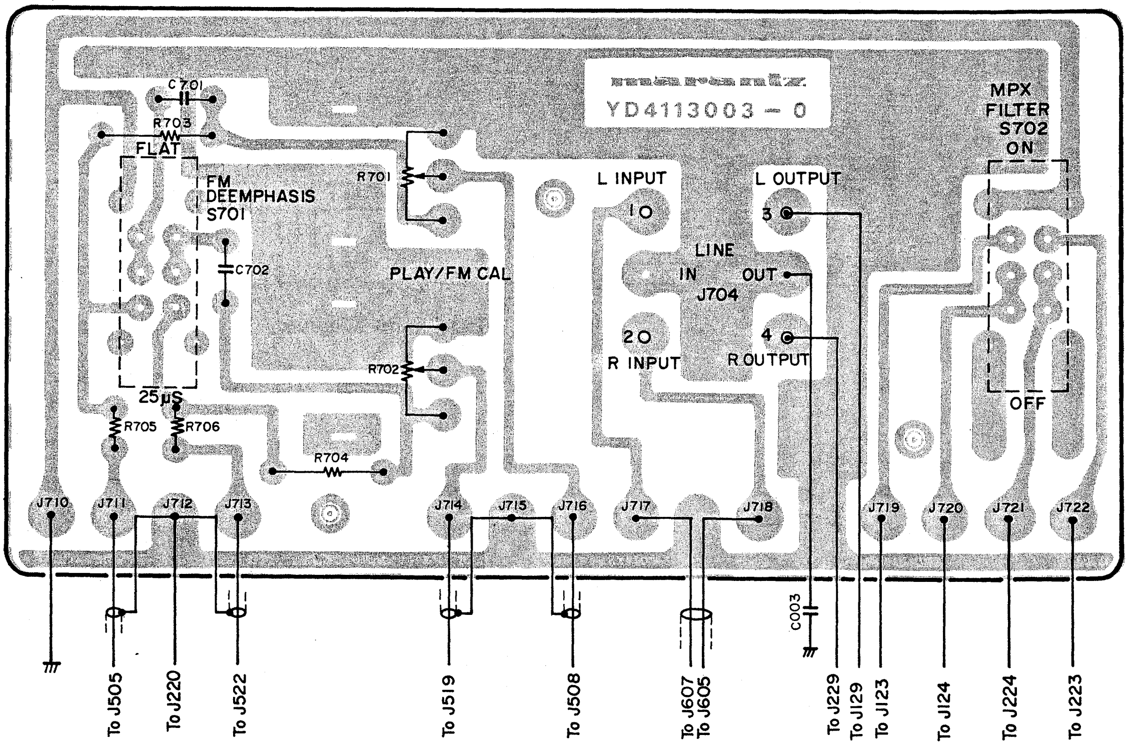
P650-Circuit Diagram


M011
M010
V001
J004
V002
to J418
to J417
to J231
to J304
to J131
to J012⑥
to J012⑤
YD3448008-0
AP16S
94V-1
J667
J668
AC IN
J660
4
3
J661
METER R
J662
6
5
J663
7
8
REC. LAMP
J659
2
1
METER L
J664
REC. SWITCH
J665
J666
CASSETTE LAMP
J657
J658
J656
J655
J653
J654
J652
J651

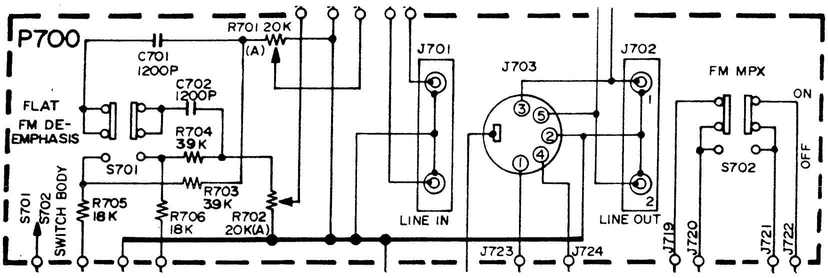
Lamp Assembly P650 Component Locations


P700
C701
1200P
R701 20K
(A)
C702
1200P
FLAT
FM DE-EMPHASIS
R704
68K
S701
R703
68K
R702
20K(A)
S701
S702
SWITCH BODY
R705
10K
R706
10K
LINE IN LINE OUT
J704
1
2
3
4
FM MPX
ON
OFF
S702

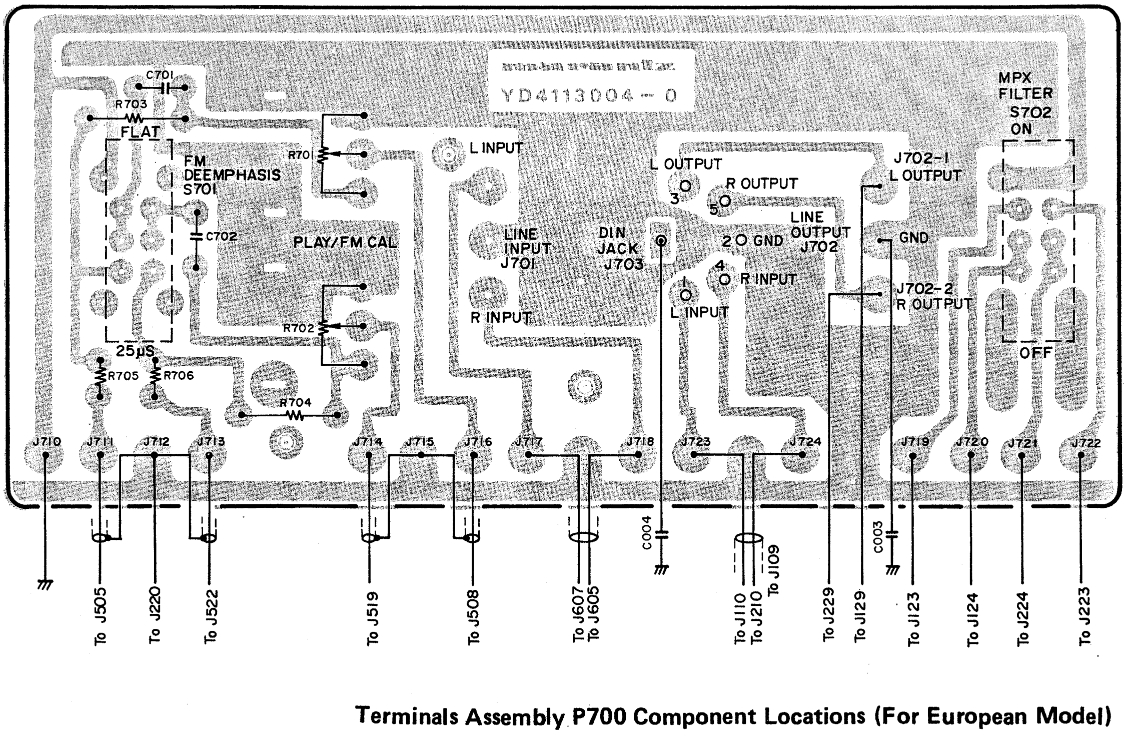
P700-Circuit Diagram


marantz
YD4113003 — 0
C701
R703
FLAT
FM DEEMPHASIS
S701
C702
25μS
R705
R706
R701
PLAY/FM CAL
R702
R704
L INPUT
1
2
R INPUT
LINE
IN
OUT
J704
L OUTPUT
3
4
R OUTPUT
MPX
FILTER
S702
ON
OFF
J710
J711
J712
J713
J714
J715
J716
J717
J718
J719
J720
J721
J722
C003
To J505
To J220
To J522
To J519
To J508
To J607
To J605
To J229
To J129
To J123
To J124
To J224
To J223

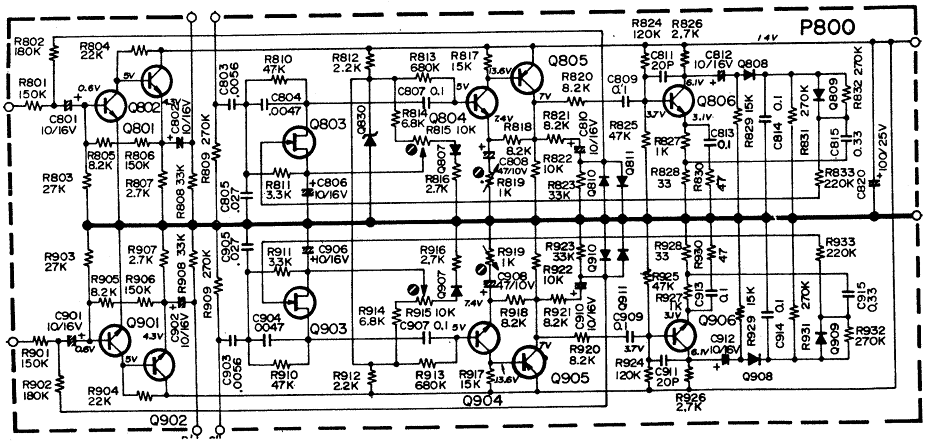
Terminals Assembly P700 Component Locations


P700
C701
1200P
R701 20K
(A)
C702
1200P
FLAT
FM DE-EMPHASIS
R704
39K
S701
R703
39K
R705
18K
R706
18K
R702
20K(A)
S701
S702
SWITCH BODY
J701
LINE IN
J703
1
2
3
4
5
J702
1
2
LINE OUT
FM MPX
ON
OFF
S702
J723
J724
J719
J720
J721
J722

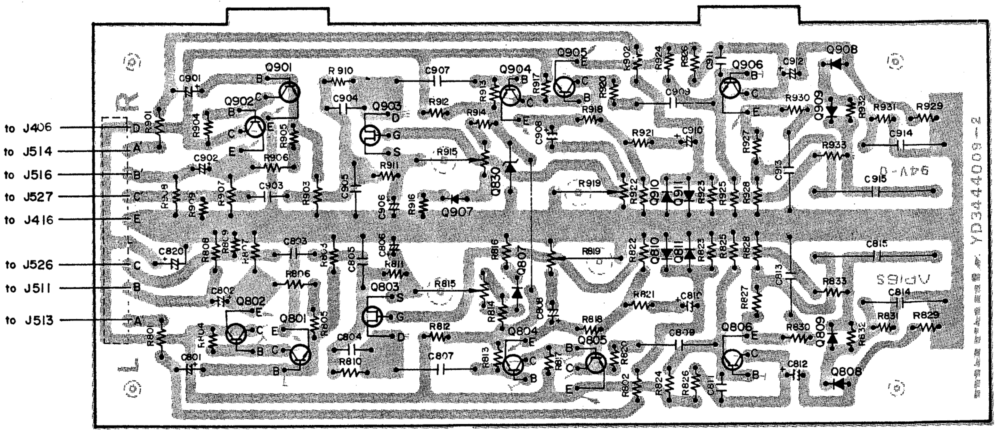
P700-Circuit Diagram (For European Model)


C701
R703
FLAT
FM DEEMPHASIS S701
C702
R701
PLAY/FM CAL
R702
25μS
R705
R706
R704
YD4113004 – 0
L INPUT
LINE INPUT J701
R INPUT
DIN JACK J703
L OUTPUT
3
R OUTPUT
5
2 GND
4 R INPUT
1 L INPUT
LINE OUTPUT J702
J702-1 L OUTPUT
GND
J702-2 R OUTPUT
MPX FILTER S702 ON
OFF
J710
J711
J712
J713
J714
J715
J716
J717
J718
J723
J724
J719
J720
J721
J722
C004
C003
To J505
To J220
To J522
To J519
To J508
To J607
To J605
To J110
To J210
To J109
To J229
To J129
To J123
To J124
To J224
To J223

Terminals Assembly P700 Component Locations (For European Model)


P800
14V
Q801
Q802
Q803
Q804
Q805
Q806
Q807
Q808
Q809
Q810
Q811
Q830
Q901
Q902
Q903
Q904
Q905
Q906
Q907
Q908
Q909
Q910
Q911
R801 150K
R802 180K
R803 27K
R804 22K
R901 150K
R902 180K
R903 27K
R904 22K
C801 10/16V
C901 10/16V
C820 100/25V

P800-Circuit Diagram


to J406
to J514
to J516
to J527
to J416
to J526
to J511
to J513
R
L
Q901
Q902
Q903
Q904
Q905
Q906
Q907
Q908
Q909
Q801
Q802
Q803
Q804
Q805
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Q807
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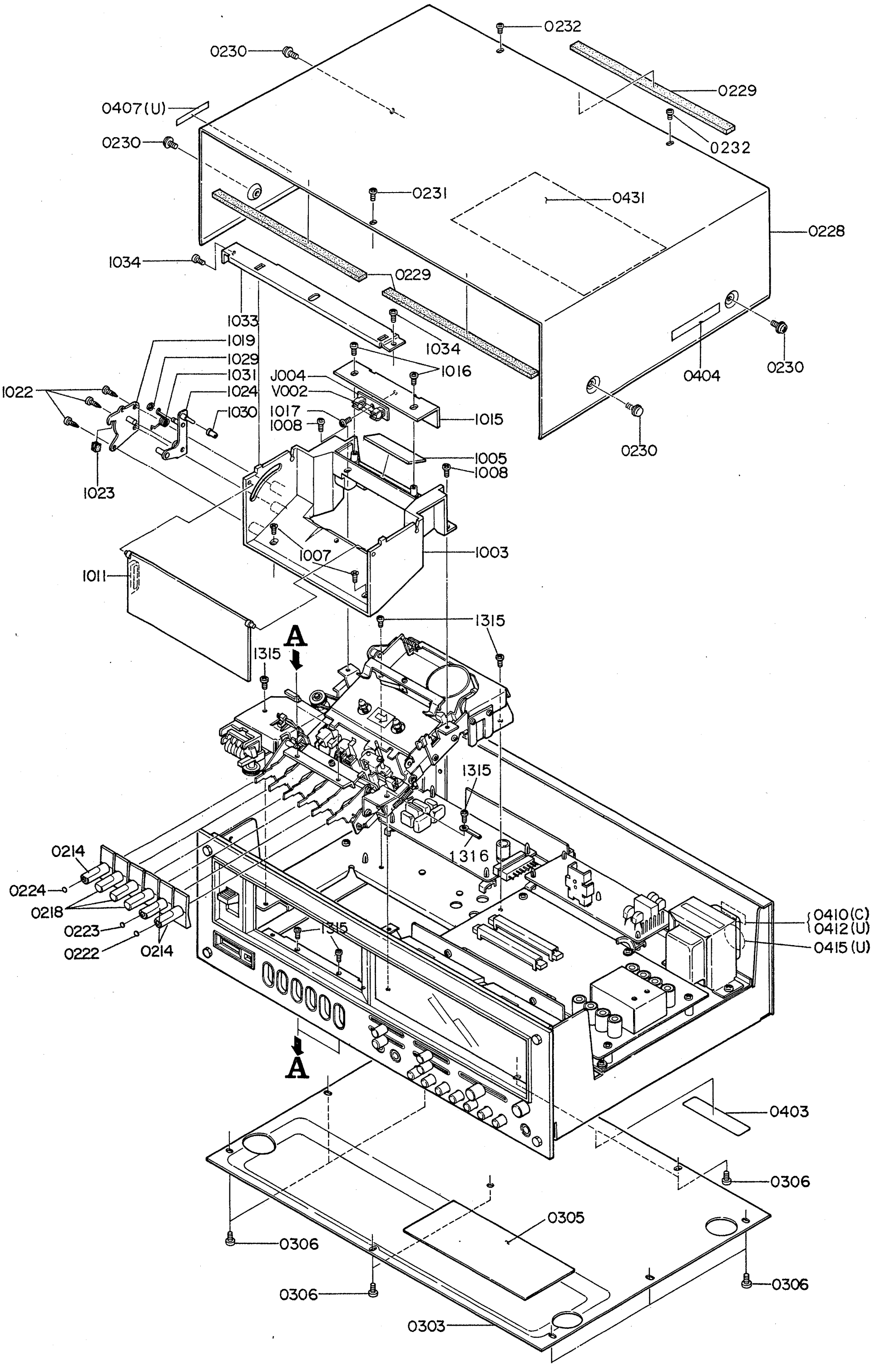
Q809
Q810
Q811
Q830
Q910
Q911
YD3444009-2

Dolly Assembly P800 Component Locations

13. EXPLODED VIEWS

Cabinet


0232
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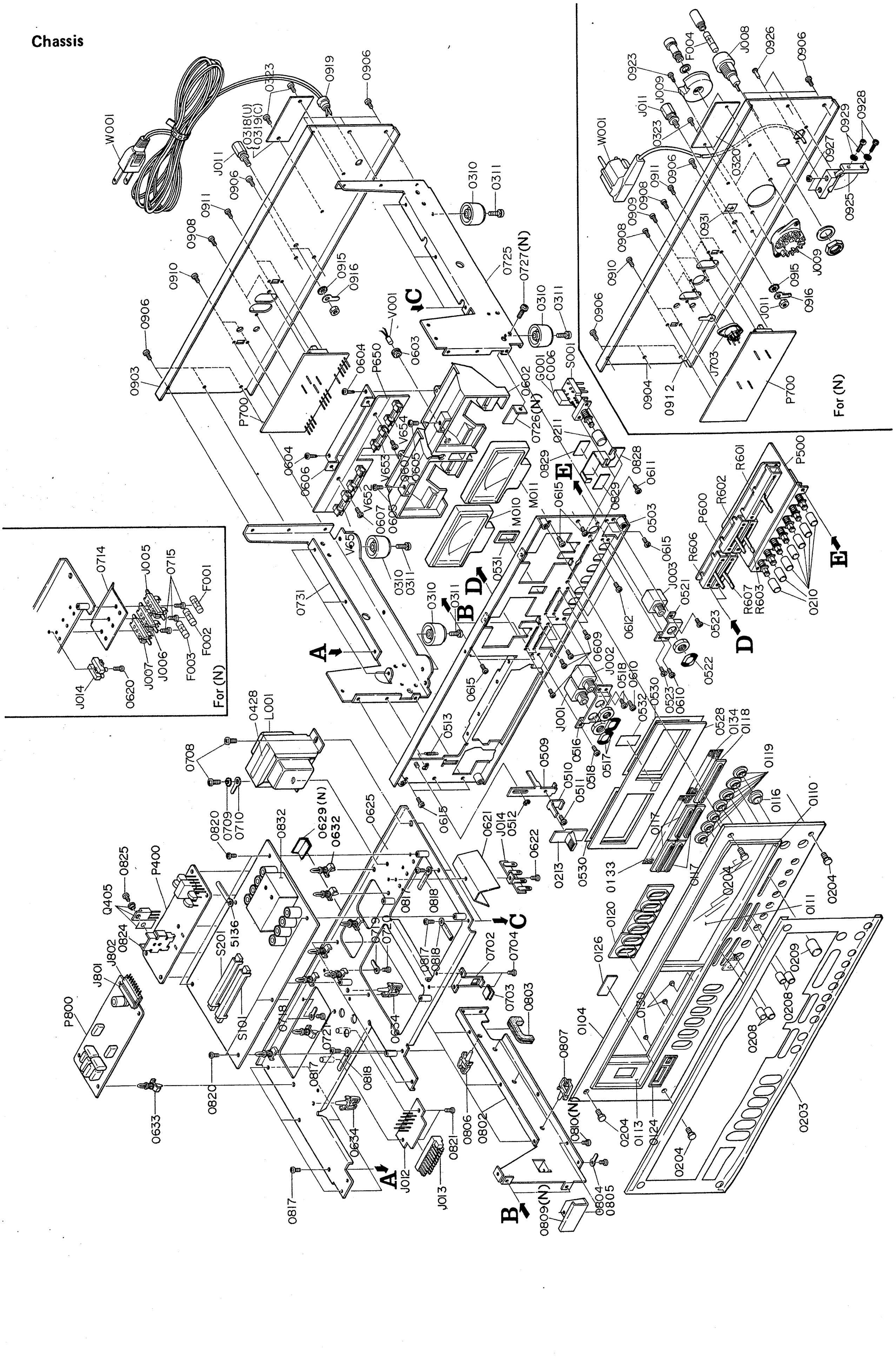
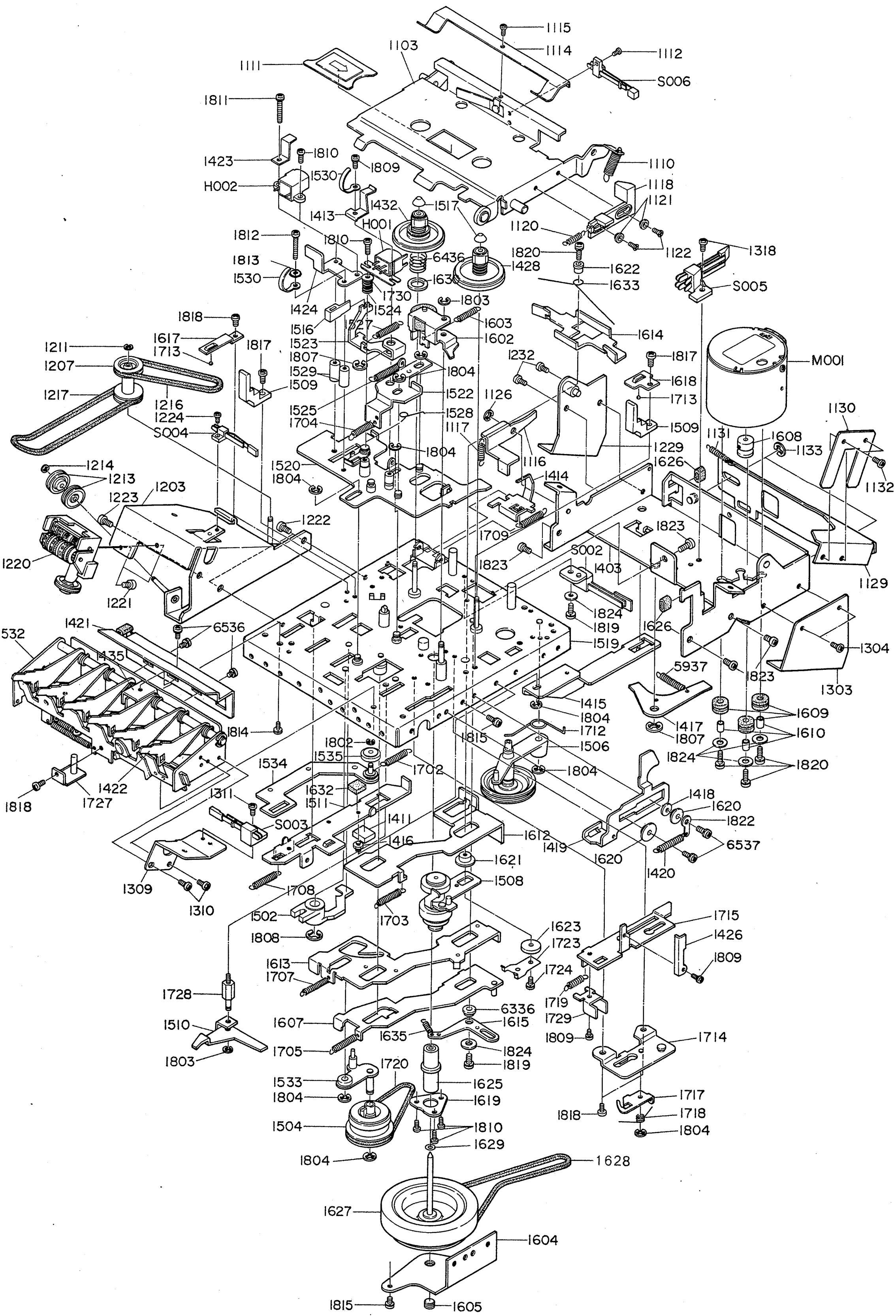
0229
0407(U)
0232
0230
0231
0431
0228
1034
0229
1033
1034
1019
1029
1031
1016
1022
J004
1024
V002
1030
1017
1015
1008
0404
0230
1005
1008
0230
1023
1007
1003
1011
1315
A
1315
1315
1316
0214
0224
0218
0410(C)
0412(U)
0415(U)
0223
1315
0222
0214
A
0403
0306
0305
0306
0306
0306
0303

Chassis


W001
0318(U)
0319(C)
J011
P700
0727(N)
C
V001
P650
0726(N)
G001
C006
S001
V654
V653
V652
V651
M011
M010
E
D
A
B
J003
J002
J001
J014
0810(N)
0809(N)
B
C
J012
J013
A
P800
J801
J802
S101
S201
Q405
P400
0629(N)
L001
J005
F001
F002
F003
J006
J007
J014
For (N)
F004
J008
J009
J011
W001
J009
J011
J703
P700
For (N)
P500
R601
R602
P600
R606
R607
R603
E
D

Tape Mechanism



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H002
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1121
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1413
H001
1120
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1318
6436
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1122
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S005
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M001
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1126
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S004
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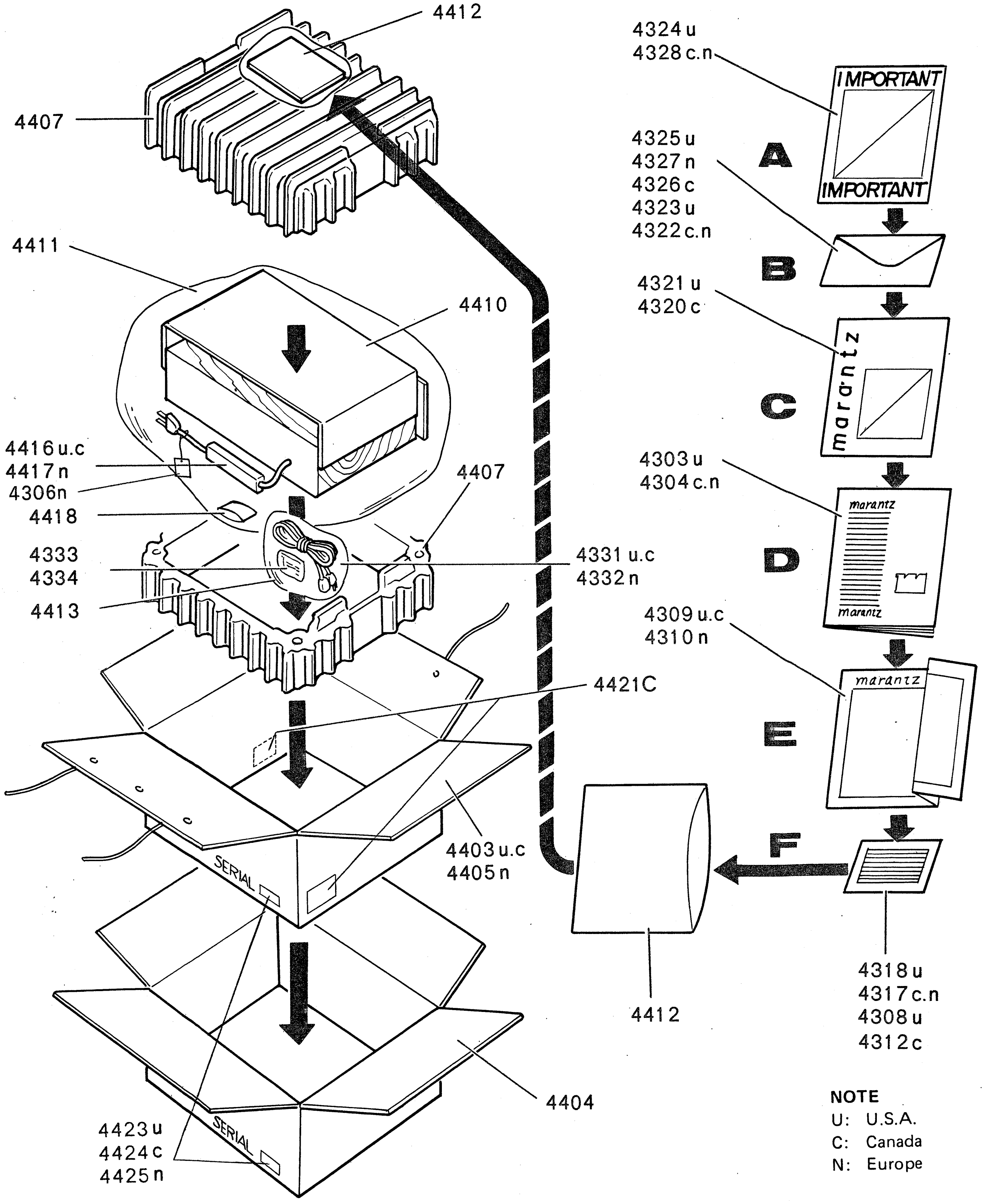
1605

14. PACKING MATERIAL EXPLODED VIEW


4412
4407
4411
4410
4416 u.c
4417 n
4306n
4418
4407
4333
4334
4331 u.c
4332 n
4413
4421C
4403 u.c
4405 n
4404
4423 u
4424 c
4425 n
SERIAL
SERIAL
4324 u
4328 c.n
IMPORTANT
IMPORTANT
A
4325 u
4327 n
4326 c
4323 u
4322 c.n
B
4321 u
4320 c
marantz
C
4303 u
4304 c.n
marantz
marantz
D
4309 u.c
4310 n
marantz
E
F
4412
4318 u
4317 c.n
4308 u
4312 c

NOTE
U: U.S.A.
C: Canada
N: Europe

15. PARTS LIST

U: U.S.A.
C: Canada
N: Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
A	1	1	1	4113063400	Front Panel Assembly
0104	1	1	1	4113063500	Front Panel
0110	1	1	1	3448401016	Frame
0111	1	1	1	4113158010	Window
0113	1	1	1	4113158020	Window
0116	1	1	1	2886259010	Bushing
0117	4	4	4	3448259070	Bushing
0118	1	1	1	3448259080	Bushing
0119	7	7	7	3448259010	Bushing
0120	1	1	1	4113259012	Bushing
0124	1	1	1	4113053010	Cover
0126	1	1	1	3448158032	Window
0130	3	3	3	1861056030	Buffer
0133	1	1	1	3448303010	Mask
0134	1	1	1	3448303020	Mask
0203	1	1	1	4113053020	Cover
B	1	1	1	4113270400	Button Assembly, Pause
0214	1	1	1	4113270502	Button
0222	1	1	1	3411108013	Seal
C	1	1	1	4113270410	Button Assembly, Stop. Eject
0214	1	1	1	4113270502	Button
0223	1	1	1	3411108023	Seal
D	1	1	1	4113270420	Button Assembly, Rec.
0214	1	1	1	4113270502	Button
0224	1	1	1	3411108033	Seal
E	1	1	1	4113257400	Top Lid Assembly
0228	1	1	1	3448257012	Lid
0229	3	3	3	2577118070	Spacer
0431	1	1	1	4113861010	Label, Adj. Point
F			1	4113160400	Rear Panel Assembly
0904			1	4113160050	Bracket
0925			1	2821259010	Bushing
0926			1	55060305S0	T.R. Rivet
					EXTERIORS
0204	4	4	4	52017039J0	H. Head Bolt
0208	4	4	4	3448154010	Knob, Mic & Line
0209	1	1	1	2850154010	Knob, Master Level
0210	7	7	7	3448154020	Knob, Push Button
0211	1	1	1	3448154040	Knob, Power
0213	1	1	1	3448270012	Button
0218	3	3	3	4113270512	Button Play, FF, Rew
0230	4	4	4	51480406S0	B. H. M. Screw F, B4x6
0231	1	1	1	51122608S0	T. H. M. Screw T, T2.6x8
0232	2	2	2	51122605S0	T. H. M. Screw T, T2.6x5
0303	1	1	1	3448257023	Lid
0305	1	1	1	3448120050	Insulator
0306	10	10	10	51100406S9	B. H. M. Screw, B4x6
0310	4	4	4	2932057010	Leg
0311	4	4	4	51440410S9	B. H. M. Screw FS, B4x10
					PANEL INDICATORS
0318	1			4113265010	Name Plate
0319		1		4113265022	Name Plate
0320			1	4113265032	Name Plate
0323	2	2	2	51100306S9	B. H. M. Screw, B3x6
0403	1	1	1	2578861010	Label, UL Caution
0404	1	1	1	2932861010	Label, Caution "Do not remove marking on bottom"
0407	1			2818861010	Label, "Imitation"
0410		1		9510911010	Label, LL No.
0412	1			9510911020	Label, UL Factory
0415	1			9511101050	Label, UL
					LABEL INSIDE CABINET
0428	1	1	1	2908861010	Label, "Marantz" on Power Transf.
					FRONT PANEL ASSOCIATED HARDWARE
0503	1	1	1	4113160500	Bracket K
0509	1	1	1	4113354020	Lever
0510	1	1	1	4113354030	Lever
0511	1	1	1	51100305B9	B. H. M. Screw, B3x5
0512	1	1	1	64000300R0	RG Ring, E Type
0513	1	1	1	4113115080	Spring
0516	1	1	1	3448160192	Bracket
0517	2	2	2	3448107010	Sheet
0518	2	2	2	51100306B9	B. H. M. Screw, B3x6
0521	1	1	1	3448160020	Bracket
0522	1	1	1	3448107010	Sheet
0523	2	2	2	51100306B9	B. H. M. Screw, B3x6
0528	1	1	1	4113265040	Indicator, Meter Window
0530	2	2	2	3448122010	Sticker, Blind
0531	1	1	1	3448118033	Spacer
0532	1	1	1	3444107030	Sheet
0602	1	1	1	3448274014	Reflector
0603	1	1	1	3444271060	Holder, Lamp
0604	2	2	2	51280308P0	B. H. Tapped Screw, B3x8ST
0605	2	2	2	51100306B9	B. H. M. Screw, B3x6
0606	1	1	1	3448160270	Bracket
0607	2	2	2	51100306B9	B. H. M. Screw, B3x6
0609	8	8	8	51100205B0	B. H. M. Screw, B2x5
0610	2	2	2	51100304B9	B. H. M. Screw, B3x4
0611	2	2	2	51100306B9	B. H. M. Screw, B3x6
0612	2	2	2	51100306B9	B. H. M. Screw, B3x6
0615	8	8	8	51100306B9	B. H. M. Screw, B3x6
					CHASSIS AND ASSOCIATED PARTS
0620			1	51100314B9	B. H. M. Screw, B3x14
0621	1	1		3892120020	Insulator
0622	1	1		51100306B9	B. H. M. Screw, B3x6
0625	1	1	1	4113105503	Chassis K
0629			1	3448120060	Insulator
0632	5	5	5	2912101050	Support
0633	4	4	4	2912101050	Support
0634	2	2	2	2886005050	Clamper
0702	1	1	1	3448160220	Bracket
0703	1	1	1	2886120090	Insulator
0704	2	2	2	51100306B9	B. H. M. Screw, B3x6

U: U.S.A.
C: Canada
N: Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
0708	2	2	2	51100408B9	B. H. M. Screw, B4x8
0709	2	2	2	54050400R0	T. L. Washer OR
0710	1	1	1	62041760W0	Lug
0714			1	3448120043	Insulator
0715			3	51062606B0	P. H. M. Screw, P2.6x6
0718	1	1	1	62030039W0	T. L. Lug
0719			1	62030039W0	T. L. Lug
0720	1	1	1	51570306B0	P. H. Tapped Screw, P3x6ST
0721	1	1	1	51570306B0	P. H. Tapped Screw, P3x6ST
0725	1	1	1	3448104013	Retainer
0726			1	3448114110	Stopper
0727			1	51100306B9	B. H. M. Screw, B3x6
0731	1	1	1	4113104010	Retainer
0802	1	1	1	4113104022	Retainer
0803	1	1	1	2889259010	Bushing
0804	1	1	1	62030039W0	T. L. Lug
0805	1	1	1	51100306B9	B. H. M. Screw, B3x6
0806	1	1	1	2886005050	Clamper
0807	3	3	3	2886005020	Clamper
0809			1	3448114100	Stopper
0810			1	51100306B9	B. H. M. Screw, B3x6
0817	9	9	9	51100306B9	B. H. M. Screw, B3x6
0818	3	3	3	1382005030	Clamper
0820	6	6	6	51100305S9	B. H. M. Screw, B3x5
0821	2	2	2	51100305S9	B. H. M. Screw, B3x5
0824	1	1	1	3444267013	Heatsink
0825	1	1	1	51100306A9	B. H. M. Screw, B3x6
0828	1	1	1	3448109040	Shield
0829	2	2	2	3448120070	Insulator
0832	1	1	1	3444109092	Shield
					TERMINAL BOARD ASSOCIATED HARDWARE
0903	1	1		4113160040	Bracket
0906	8	8	8	51100306S9	B. H. M. Screw B3x6
0908	2	2	4	51100306S9	B. H. M. Screw, B3x6
0909			2	51100306S9	B. H. M. Screw, B3x6
0910	2	2	2	51102603S0	B. H. M. Screw, B2.6x3
0911	2	2	2	51102603S0	B. H. M. Screw, B2.6x3
0912			1	62031340W0	Lug
0915	1	1	1	54050400R0	T. L. Washer OR
0916	1	1	1	62041760W0	Lug
0919	1	1		1455259030	Bushing
0923			2	51100306S9	B. H. M. Screw, B3x6
0927			2	53110303A9	Hexagon Nut
0928			2	51100316A9	B. H. M. Screw, B3x16
0929			2	54050300R0	T. L. Washer OR
0931			1	2882861020	Label
					TAPE MECHANISM MOUNTING HARDWARE
1003	1	1	1	4113064012	Case
1005	1	1	1	4113158042	Window
1007	2	2	2	51040310S9	F. H. M. Screw, F3x10
1008	2	2	2	51100306B9	B. H. M. Screw, B3x6
1011	1	1	1	4113257012	Window
1015	1	1	1	4113160090	Bracket
1016	2	2	2	51100305B9	B. H. M. Screw, B3x5
1017	1	1	1	51100305B9	B. H. M. Screw, B3x5
1019	1	1	1	4113160540	Bracket K
1022	3	3	3	51300308P0	P. H. Tapped Screw, P3x8ST
1023	1	1	1	4113056020	Buffer
1024	1	1	1	4113002502	Arm K

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
1029	1	1	1	64000200R0	RG Ring E Type
1030	1	1	1	3448055050	Collar
1031	1	1	1	4113115062	Spring
1033	1	1	1	4113269012	Protector
1034	2	2	2	51100306B9	B. H. M. Screw, B3x6
1103	1	1	1	4113163504	Tray K
1110	1	1	1	4113115022	Spring
1111	1	1	1	3448158040	Window
1112	1	1	1	51060204B0	P. H. M. Screw, P2x4
1114	1	1	1	4113115042	Spring
1115	3	3	3	51100204B0	B. H. M. Screw, B2x4
1116	1	1	1	4113354100	Lever
1117	1	1	1	4113115100	Spring
1118	1	1	1	4113354072	Lever
1120	1	1	1	4113115072	Spring
1121	2	2	2	4113055010	Collar
1122	2	2	2	51040205B0	F. H. M. Screw, F2x5
1126	1	1	1	64000200R0	RG Ring, E Type
1129	1	1	1	4113354082	Lever, Rec. Switch
1130	1	1	1	4113115010	Spring
1131	1	1	1	4113115080	Spring
1132	2	2	2	51100305B9	B. H. M. Screw, B3x5
1133	2	2	2	64000300R0	RG Ring, E Type
1203	1	1	1	4113160510	Bracket K
1207	1	1	1	4113262500	Pulley K
1211	1	1	1	64001500R0	RG Ring, E Type
1213	2	2	2	4113262020	Pulley
1214	1	1	1	64001500R0	RG Ring, E Type
1216	1	1	1	4113264012	Belt
1217	1	1	1	4113264022	Belt
1220	1	1	1	4113052010	Counter
1221	2	2	2	51100305B9	B. H. M. Screw, B3x5
1222	2	2	2	51570306B0	P. H. Tapped Screw, P3x6ST
1223	1	1	1	51102605B0	B. H. M. Screw, B2.6 x5
1224	1	1	1	51060205B0	P. H. M. Screw, P2x5
1229	1	1	1	4113160522	Bracket K
1232	2	2	2	51570306B0	P. H. Tapped Screw, P3x6ST
1303	1	1	1	4113160120	Bracket
1304	2	2	2	51570306B0	P. H. Tapped Screw, P3x6ST
1309	1	1	1	4113160072	Bracket
1310	2	2	2	51102605B0	B. H. M. Screw, B2.6x5
1311	1	1	1	51102606B0	B. H. M. Screw, B2.6x6
1315	6	6	6	51100306B9	B. H. M. Screw, B3x6
1316	1	1	1	1382005030	Clamper
1318	1	1	1	51102606B0	B. H. M. Screw, B2.6x5
					TAPE MECHANISM
1403	1	1	1	4113160534	Bracket K
1411	1	1	1	4133056020	Buffer
1412	1	1	1	4113115080	Spring
1413	1	1	1	3904115042	Spring
1414	1	1	1	4113354090	Lever
1415	1	1	1	4113354042	Lever
1416	1	1	1	4113112060	Shaft
1417	1	1	1	4113002032	Arm
1418	1	1	1	4113358020	Roller
1419	1	1	1	4113354052	Lever
1420	1	1	1	4113115090	Spring
1421	1	1	1	4113104032	Retainer
1422	6	6	6	4113354010	Lever
1423	1	1	1	4113114010	Stopper
1424	1	1	1	4113160132	Bracket
1426	1	1	1	4113002050	Arm

U: U.S.A.
C: Canada
N: Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
1428	1	1	1	4113004500	Table K
1432	1	1	1	4113004510	Table K
1435	1	1	1	3904104020	Retainer
1502	1	1	1	3435002100	Arm
1504	1	1	1	4129001010	Idler
1506	1	1	1	3435001700	Idler K
1508	1	1	1	4129001700	Ider K
1509	2	2	2	4113051020	Guide, Cassette
1510	1	1	1	3904354060	Lever, Eject
1511	1	1	1	3435354250	Lever, Rec.
1516	1	1	1	3435123010	Contactor
1517	2	2	2	3435067100	Cap
1519	1	1	1	4113105700	Chassis S, Main
1520	1	1	1	4113105710	Chassis S, Head
1522	1	1	1	3435354200	Lever
1523	1	1	1	4113002060	Arm
1524	1	1	1	3435115200	Spring
1525	1	1	1	3435115210	Spring
1527	1	1	1	3435115222	Spring
1528	1	1	1	3435115230	Spring
1529	2	2	2	4113101030	Support
1530	2	2	2	3435005060	Clumper
1532	1	1	1	4113354500	Lever K
1533	1	1	1	3435002700	Arm S
1534	1	1	1	3435002710	Arm S
1535	1	1	1	3435001050	Idler
1602	1	1	1	4113255500	Pinch Roller K
1603	1	1	1	3435115240	Spring
1604	1	1	1	3435104100	Retainer
1605	1	1	1	3435106010	Bearing
1607	1	1	1	4129002700	Arm S
1608	1	1	1	3435262010	Pulley
1609	3	3	3	3435056010	Buffer
1610	3	3	3	4113055020	Collar
1612	1	1	1	3435354230	Lever
1613	1	1	1	3435354240	Lever
1614	1	1	1	3435002120	Arm
1615	1	1	1	3435002130	Arm
1617	1	1	1	3435115260	Spring
1618	1	1	1	3435115270	Spring
1620	2	2	2	3904259010	Bushing
1621	1	1	1	4113259030	Bushing
1622	1	1	1	3435055020	Collar
1623	1	1	1	4113055030	Collar
1625	1	1	1	3435106040	Bearing
1626	2	2	2	4113056030	Buffer
1627	1	1	1	4113273500	Flywheel K
1628	1	1	1	3435264010	Belt
1629	1	1	1	59254602G9	Washer
1630	1	1	1	59060902G9	Washer
1632	1	1	1	3435056020	Buffer
1633	1	1	1	3435115290	Spring
1635	1	1	1	3435115320	Spring
1702	1	1	1	3435115330	Spring, Rew Arm
1703	1	1	1	3435115340	Spring, Break Lever
1704	1	1	1	3435115360	Spring, Head Chassis
1705	1	1	1	3435115370	Spring, FF Arm
1707	1	1	1	3435115380	Spring, Rew Lever
1708	1	1	1	3435115390	Spring, Rec Lever
1709	1	1	1	3904115060	Spring
1712	1	1	1	3435115620	Spring
1713	2	2	2	61020010T0	Ball
1714	1	1	1	3435160700	Bracket S
1715	1	1	1	3435354270	Lever
1717	1	1	1	3435054100	Cam
1718	1	1	1	3435115630	Spring
1719	1	1	1	3435115640	Spring
1720	1	1	1	4129264010	Belt
1723	1	1	1	4129115020	Spring
1724	1	1	1	51062603A0	P. H. M. Screw, P2.6x3
1727	1	1	1	3904002500	Arm S
1728	1	1	1	3904101010	Support
1729	1	1	1	3904125010	Joint
1730	1	1	1	3444118070	Spacer
1802	1	1	1	64001500R0	RG Ring, E Type
1803	2	2	2	64000200R0	RG Ring, E Type
1804	9	9	9	64002500R0	RG Ring, E Type
1807	2	2	2	64000300R0	RG Ring, E Type
1808	1	1	1	64000400R0	RG Ring, E Type
1809	3	3	3	51440204A0	L Washer Screw
1810	5	5	5	51060205A0	P. H. M. Screw, P2x5
1811	1	1	1	51440216A0	L Washer Screw
1812	1	1	1	51060214A0	P. H. M. Screw, P2x14
1813	1	1	1	54020201E0	Flat Washer P
1814	2	2	2	51442604A0	L Washer Screw, 2.6x4
1815	3	3	3	51442605A0	L Washer Screw, 2.6x5
1817	1	1	1	51062605A0	P. H. M. Screw, P2.6x5
1818	4	4	4	51062603A0	P. H. M. Screw, P2.6x3
1819	2	2	2	51442606A0	L Washer Screw, 2.6x6
1820	4	4	4	51442608A0	L Washer Screw, 2.6x8
1822	1	1	1	62261240W0	Lug
1823	4	4	4	51570305A0	P. Tapped Screw, P3x5ST
1824	5	5	5	54022601E0	Flat Washer P
					PRINTED MATTER
4303	1			4113851010	Instructions, Set
4304		1	1	4113851310	Instructions, Set
4306			1	9560000042	Hang Tag
4308	1			9650000060	S Station Card
4309	1	1		4113856010	Schematic Diagram
4310			1	4113856020	Schematic Diagram
4312		1		9650000050	S Station Card
4317		1	1	2818851140	Instructions, Packing
4318	1			2818851040	Instructions, Packing
4320		1		2818854040	Guarantee Card
4321	1			2818854020	Guarantee Card
4322		1	1	9630000180	Guarantee Card, IBM
4323	1			2577854012	Guarantee Card, IBM
4324	1			2577851020	Instructions, "Important"
4325	1			2577813010	Envelope
4326		1		2918813012	Envelope
4327			1	2818813010	Envelope
4328		1	1	2818851120	Instructions, "Important"
					ACCESSORIES
4331	2	2		ZD01500160	Connection Cord, RCA Type
4332			1	ZD02000070	Connection Cord, DIN Type
4333	1	1	1	3089071020	Cleaner, Longer
4334	1	1	1	2881071010	Cleaner, Shorter
					PACKING MATERIALS
4403	1	1		4113801010	Packing Case, Inner
4404	1	1	1	4113801020	Packing Case, Outer
4405			1	4113801030	Packing Case, Inner

U: U.S.A.
C: Canada
N: Europe

REF. DESIG.	Q'TY U	Q'TY C	Q'TY N	PART NO.	DESCRIPTION
4407	2	2	2	3448803013	Cushion
4410	1	1	1	2918107150	Sheet
4411	1	1	1	9014538350	Polyethylene Bag, Set
4412	1	1	1	9013025010	Polyethylene Bag, Printed Matter
4413	1	1	1	9011325010	Polyethylene Bag, Accessories
4416	1	1		1029804010	Sleeve
4417			1	2864804010	Sleeve
4418	1	1	1	2731821010	Silicagel
4421		2		9510901020	Label
4423	4			9522815010	Serial No. Card
4424		4		9523015120	Serial No. Card
4425			4	9523015130	Serial No. Card
5136	1	1	1	1210005010	Clamper
5937	1	1	1	4113115080	Spring
6336	1	1	1	3435055030	Collar
6436	1	1	1	3435115610	Spring
6536	3	3	3	51442605A0	L. Washer Screw
6537	2	2	2	51062606A0	P.H.M. Screw, P2.6x6
					PRE AMP. CIRCUIT BOARD-P100
P100	1	1	1	YD41130010	P. W. Board (Print Only)
	1	1	1	ZZ41130010	P. W. Board Assembly
					P100-SWITCHES
S101	1	1	1	SS09020070	Slide Switch, Rec/Play
S201	1	1	1	SS09020070	Slide Switch, Rec/Play
					P100-COILS & TRANSFORMERS
L101	1	1	1	LC22250040	Choke Coil, 2.5mH
L201	1	1	1	LC22250040	Choke Coil, 2.5mH
L102	1	1	1	LC22260050	Choke Coil, 22mH
L202	1	1	1	LC22260050	Choke Coil, 22mH
L103	1	1	1	LC23960010	Choke Coil, 39mH
L203	1	1	1	LC23960010	Choke Coil, 39mH
L104	1	1	1	LC27250010	Choke Coil, 7.2mH
L204	1	1	1	LC27250010	Choke Coil, 7.2mH
L105	1	1	1	LC25650040	Choke Coil, 5.6mH
L205	1	1	1	LC25650040	Choke Coil, 5.6mH
L106	1	1	1	LC24750030	Choke Coil, 4.7mH
L206	1	1	1	LC24750030	Choke Coil, 4.7mH
L107	1	1	1	LC22260050	Choke Coil, 22mH
L207	1	1	1	LC22260050	Choke Coil, 22mH
L108	1	1	1	TO11905040	Output Transformer
L208	1	1	1	TO11905040	Output Transformer
L301	1	1	1	TC10180072	Osc Transformer
					P100-SEMICONDUCTORS
Q101	1	1	1	HT107501E0	Transistor, 2SA750(E)
Q201	1	1	1	HT107501E0	Transistor, 2SA750(E)
Q102	1	1	1	HT312221U0	Transistor, 2SC1222(U)
Q202	1	1	1	HT312221U0	Transistor, 2SC1222(U)
Q103	1	1	1	HT402272A0	Transistor, 2SD227(Q) or (V)
Q203	1	1	1	HT402272A0	Transistor, 2SD227(Q) or (V)
Q104	1	1	1	HT107501F0	Transistor, 2SA750(F)
Q204	1	1	1	HT107501F0	Transistor, 2SA750(F)
Q105	1	1	1	HD20011050	Diode, 1S1555
Q205	1	1	1	HD20011050	Diode, 1S1555
Q106	1	1	1	HT312221U0	Transistor, 2SC1222(U)
Q206	1	1	1	HT312221U0	Transistor, 2SC1222(U)
Q207	1	1	1	HD20011050	Diode, 1S1555
Q207	1	1	1	HD20011050	Diode, 1S1555
Q108	1	1	1	HD20011050	Diode, 1S1555
Q208	1	1	1	HD20011050	Diode, 1S1555
Q109	1	1	1	HD10003020	Diode, 2OA90

REF. DESIG.	Q'TY U	Q'TY C	Q'TY N	PART NO.	DESCRIPTION
Q209	1	1	1	HD10003020	Diode, 2OA90
Q110	1	1	1	HT312221U0	Transistor, 2SC1222(U)
Q210	1	1	1	HT312221U0	Transistor, 2SC1222(U)
Q111	1	1	1	HT312221E0	Transistor, 2SC1222(E)
Q211	1	1	1	HT312221E0	Transistor, 2SC1222(E)
Q112	1	1	1	HT309452B0	Transistor, 2SC945(P) or (Q)
Q212	1	1	1	HT309452B0	Transistor, 2SC945(P) or (Q)
Q113	1	1	1	HD30031090	Diode, WZ082
Q213	1	1	1	HD30031090	Diode, WZ082
Q114	1	1	1	HD30033090	Diode, WZ052
Q214	1	1	1	HD30033090	Diode, WZ052
Q115	1	1	1	HT309001E0	Transistor, 2SC900(E)
Q215	1	1	1	HT309001E0	Transistor, 2SC900(E)
Q116	1	1	1	HT309452B0	Transistor, 2SC945(P) or (Q)
Q216	1	1	1	HT309452B0	Transistor, 2SC945(P) or (V)
Q117	1	1	1	HD10003020	Diode, 2OA90
Q217	1	1	1	HD10003020	Diode, 2OA90
Q118	1	1	1	HT312221E0	Transistor, 2SC1222(E)
Q218	1	1	1	HT312221E0	Transistor, 2SC1222(E)
Q119	1	1	1	HT312221E0	Transistor, 2SC1222(E)
Q219	1	1	1	HT312221E0	Transistor, 2SC1222(E)
Q120	1	1	1	HT107501E0	Transistor, 2SA750(E)
Q220	1	1	1	HT107501E0	Transistor, 2SA750(E)
Q301	1	1	1	HT313181R0	Transistor, 2SC1318(R)
Q302	1	1	1	HT313181R0	Transistor, 2SC1318(R)
					P100-RESISTORS
R101	1	1	1	RN05473140	Fixed, 47KΩ ±5%, ¼W
R201	1	1	1	RN05473140	Fixed, 47KΩ ±5%, ¼W
R102	1	1	1	RT05471140	Fixed, 470Ω ±5%, ¼W
R202	1	1	1	RT05471140	Fixed, 470Ω ±5%, ¼W
R103	1	1	1	RT05101140	Fixed, 100Ω ±5%, ¼W
R203	1	1	1	RT05101140	Fixed, 100Ω ±5%, ¼W
R104	1	1	1	RN05124140	Fixed, 120KΩ ±5%, ¼W
R204	1	1	1	RN05124140	Fixed, 120KΩ ±5%, ¼W
R105	1	1	1	RN05103140	Fixed, 10KΩ ±5%, ¼W
R205	1	1	1	RN05103140	Fixed, 10KΩ ±5%, ¼W
R106	1	1	1	RN05224140	Fixed, 220KΩ ±5%, ¼W
R206	1	1	1	RN05224140	Fixed, 220KΩ ±5%, ¼W
R107	1	1	1	RN05683140	Fixed, 68KΩ ±5%, ¼W
R207	1	1	1	RN05683140	Fixed, 68KΩ ±5%, ¼W
R108	1	1	1	RN05184140	Fixed, 180KΩ ±5%, ¼W
R208	1	1	1	RN05184140	Fixed, 180KΩ ±5%, ¼W
R109	1	1	1	RN05333140	Fixed, 33KΩ ±5%, ¼W
R209	1	1	1	RN05333140	Fixed, 33KΩ ±5%, ¼W
R110	1	1	1	RT05391140	Fixed, 390Ω ±5%, ¼W
R210	1	1	1	RT05391140	Fixed, 390Ω ±5%, ¼W
R111	1	1	1	RT05473140	Fixed, 47KΩ ±5%, ¼W
R211	1	1	1	RT05473140	Fixed, 47KΩ ±5%, ¼W
R112	1	1	1	RN05104140	Fixed, 100KΩ ±5%, ¼W
R212	1	1	1	RN05104140	Fixed, 100KΩ ±5%, ¼W
R113	1	1	1	RN05103140	Fixed, 10KΩ ±5%, ¼W
R213	1	1	1	RN05103140	Fixed, 10KΩ ±5%, ¼W
R114	1	1	1	RT05101140	Fixed, 100Ω ±5%, ¼W
R214	1	1	1	RT05101140	Fixed, 100Ω ±5%, ¼W
R115	1	1	1	RT05182140	Fixed, 1.8KΩ ±5%, ¼W
R215	1	1	1	RT05182140	Fixed, 1.8KΩ ±5%, ¼W
R116	1	1	1	RN05473140	Fixed, 47KΩ ±5%, ¼W
R216	1	1	1	RN05473140	Fixed, 47KΩ ±5%, ¼W
R117	1	1	1	RA03020030	Trimming, 3KΩ
R217	1	1	1	RA03020030	Trimming 3KΩ
R118	1	1	1	RN05302140	Fixed, 3KΩ ±5%, ¼W
R218	1	1	1	RN05302140	Fixed, 3KΩ ±5%, ¼W
R119	1	1	1	RN05152140	Fixed, 1.5KΩ ±5%, ¼W

U: U.S.A.
C: Canada
N: Europe

REF. DESIG.	Q'TY U	Q'TY C	Q'TY N	PART NO.	DESCRIPTION
R219	1	1	1	RN05152140	Fixed, 1.5KΩ ±5%, ¼W
R120	1	1	1	RA02030060	Trimming, 20KΩ
R220	1	1	1	RA02030060	Trimming, 20KΩ
R121	1	1	1	RN05103140	Fixed, 10KΩ ±5%, ¼W
R221	1	1	1	RN05103140	Fixed, 10KΩ ±5%, ¼W
R122	1	1	1	RT05101140	Fixed, 100Ω ±5%, ¼W
R222	1	1	1	RT05101140	Fixed, 100Ω ±5%, ¼W
R123	1	1	1	RN05224140	Fixed, 220KΩ ±5%, ¼W
R223	1	1	1	RN05224140	Fixed, 220KΩ ±5%, ¼W
R124	1	1	1	RN05563140	Fixed, 56KΩ ±5%, ¼W
R224	1	1	1	RN05563140	Fixed, 56KΩ ±5%, ¼W
R125	1	1	1	RN05104140	Fixed, 100KΩ ±5%, ¼W
R225	1	1	1	RN05104140	Fixed, 100KΩ ±5%, ¼W
R126	1	1	1	RT05561140	Fixed, 560Ω ±5%, ¼W
R226	1	1	1	RT05561140	Fixed, 560Ω ±5%, ¼W
R127	1	1	1	RN05123140	Fixed, 12KΩ ±5%, ¼W
R227	1	1	1	RN05123140	Fixed, 12KΩ ±5%, ¼W
R128	1	1	1	RT05221140	Fixed, 220Ω ±5%, ¼W
R228	1	1	1	RT05221140	Fixed, 220Ω ±5%, ¼W
R129	1	1	1	RN05273140	Fixed, 27KΩ ±5%, ¼W
R229	1	1	1	RN05273140	Fixed, 27KΩ ±5%, ¼W
R130	1	1	1	RN05103140	Fixed, 10KΩ ±5%, ¼W
R230	1	1	1	RN05103140	Fixed, 10KΩ ±5%, ¼W
R131	1	1	1	RN05822140	Fixed, 8.2KΩ ±5%, ¼W
R231	1	1	1	RN05822140	Fixed, 8.2KΩ ±5%, ¼W
R132	1	1	1	RT05182140	Fixed, 1.8KΩ ±5%, ¼W
R232	1	1	1	RT05182140	Fixed, 1.8KΩ ±5%, ¼W
R133	1	1	1	RT05101140	Fixed, 100Ω ±5%, ¼W
R233	1	1	1	RT05101140	Fixed, 100Ω ±5%, ¼W
R134	1	1	1	RT05105140	Fixed, 1MΩ ±5%, ¼W
R234	1	1	1	RT05105140	Fixed, 1MΩ ±5%, ¼W
R135	1	1	1	RT05393140	Fixed, 39KΩ ±5%, ¼W
R235	1	1	1	RT05393140	Fixed, 39KΩ ±5%, ¼W
R136	1	1	1	RT05474140	Fixed, 470KΩ ±5%, ¼W
R236	1	1	1	RT05474140	Fixed, 470KΩ ±5%, ¼W
R137	1	1	1	RT05821140	Fixed, 820Ω ±5%, ¼W
R237	1	1	1	RT05821140	Fixed, 820Ω ±5%, ¼W
R138	1	1	1	RT05272140	Fixed, 2.7KΩ ±5%, ¼W
R238	1	1	1	RT05272140	Fixed, 2.7KΩ ±5%, ¼W
R139	1	1	1	RT05123140	Fixed, 12KΩ ±5%, ¼W
R239	1	1	1	RT05123140	Fixed, 12KΩ ±5%, ¼W
R140	1	1	1	RT05393140	Fixed, 39KΩ ±5%, ¼W
R240	1	1	1	RT05393140	Fixed, 39KΩ ±5%, ¼W
R141	1	1	1	GJ05750010	Fixed, 75Ω ±5%, 1 W
R241	1	1	1	GJ05750010	Fixed, 75Ω ±5%, 1 W
R142	1	1	1	RT05274140	Fixed, 270KΩ ±5%, ¼W
R242	1	1	1	RT05274140	Fixed, 270KΩ ±5%, ¼W
R143	1	1	1	RT05563140	Fixed, 56KΩ ±5%, ¼W
R243	1	1	1	RT05563140	Fixed, 56KΩ ±5%, ¼W
R144	1	1	1	RT05103140	Fixed, 10KΩ ±5%, ¼W
R244	1	1	1	RT05103140	Fixed, 10KΩ ±5%, ¼W
R145	1	1	1	GD05332140	Fixed, 3.3KΩ ±5%, ¼W
R245	1	1	1	GD05332140	Fixed, 3.3KΩ ±5%, ¼W
R146	1	1	1	RT05122140	Fixed, 1.2KΩ ±5%, ¼W
R246	1	1	1	RT05122140	Fixed, 1.2KΩ ±5%, ¼W
R147	1	1	1	RT05123140	Fixed, 12KΩ ±5%, ¼W
R247	1	1	1	RT05123140	Fixed, 12KΩ ±5%, ¼W
R148	1	1	1	RT05332140	Fixed, 3.3KΩ ±5%, ¼W
R248	1	1	1	RT05332140	Fixed, 3.3KΩ ±5%, ¼W
R149	1	1	1	RT05222140	Fixed, 2.2KΩ ±5%, ¼W
R249	1	1	1	RT05222140	Fixed, 2.2KΩ ±5%, ¼W
R150	1	1	1	RT05221140	Fixed, 220Ω ±5%, ¼W
R250	1	1	1	RT05221140	Fixed, 220Ω ±5%, ¼W

REF. DESIG.	Q'TY U	Q'TY C	Q'TY N	PART NO.	DESCRIPTION
R151	1	1	1	RA03020030	Trimming, 3KΩ
R251	1	1	1	RA03020030	Trimming, 3KΩ
R152	1	1	1	RT05183140	Fixed, 18KΩ ±5%, ¼W
R252	1	1	1	RT05183140	Fixed, 18KΩ ±5%, ¼W
R153	1	1	1	RT05274140	Fixed, 270KΩ ±5%, ¼W
R253	1	1	1	RT05274140	Fixed, 270KΩ ±5%, ¼W
R154	1	1	1	RT05102140	Fixed, 1KΩ ±5%, ¼W
R254	1	1	1	RT05102140	Fixed, 1KΩ ±5%, ¼W
R155	1	1	1	RT05272140	Fixed, 2.7KΩ ±5%, ¼W
R255	1	1	1	RT05272140	Fixed, 2.7KΩ ±5%, ¼W
R156	1	1	1	RA02030060	Trimming, 20KΩ
R256	1	1	1	RA02030060	Trimming, 20KΩ
R157	1	1	1	RA02030060	Trimming, 20KΩ
R257	1	1	1	RA02030060	Trimming, 20KΩ
R158	1	1	1	RA02030060	Trimming, 20KΩ
R258	1	1	1	RA02030060	Trimming, 20KΩ
R159	1	1	1	RT05304140	Fixed, 300KΩ ±5%, ¼W
R259	1	1	1	RT05304140	Fixed, 300k Ω ±5%, ¼W
R160	1	1	1	RT05273140	Fixed, 27KΩ ±5%, ¼W
R260	1	1	1	RT05273140	Fixed, 27KΩ ±5%, ¼W
R161	1	1	1	RT05682140	Fixed, 6.8KΩ ±5%, ¼W
R261	1	1	1	RT05682140	Fixed, 6.8KΩ ±5%, ¼W
R162	1	1	1	RT05222140	Fixed, 2.2KΩ ±5%, ¼W
R262	1	1	1	RT05222140	Fixed, 2.2KΩ ±5%, ¼W
R163	1	1	1	RT05562140	Fixed, 5.6KΩ ±5%, ¼W
R263	1	1	1	RT05562140	Fixed, 5.6KΩ ±5%, ¼W
R164	1	1	1	RT05563140	Fixed, 56KΩ ±5%, ¼W
R264	1	1	1	RT05563140	Fixed, 56KΩ ±5%, ¼W
R165	1	1	1	RT05102140	Fixed, 1KΩ ±5%, ¼W
R265	1	1	1	RT05102140	Fixed, 1KΩ ±5%, ¼W
R166	1	1	1	RT05220140	Fixed, 22Ω ±5%, ¼W
R266	1	1	1	RT05220140	Fixed, 22Ω ±5%, ¼W
R167	1	1	1	RT05220140	Fixed, 22Ω ±5%, ¼W
R267	1	1	1	RT05220140	Fixed, 22Ω ±5%, ¼W
R168	1	1	1	RT05220140	Fixed, 22Ω ±5%, ¼W
R268	1	1	1	RT05220140	Fixed, 22Ω ±5%, ¼W
R170	1	1	1	RT05102140	Fixed, 1KΩ ±5%, ¼W
R270	1	1	1	RT05102140	Fixed, 1KΩ ±5%, ¼W
R171	1	1	1	RT05103140	Fixed, 10KΩ ±5%, ¼W
R271	1	1	1	RT05103140	Fixed, 10KΩ ±5%, ¼W
R172	1	1	1	GJ05220010	Fixed, 22Ω ±5%, 1W
R272	1	1	1	GJ05220010	Fixed, 22Ω ±5%, 1W
R173	1	1	1	RT05103140	Fixed, 10KΩ ±5%, ¼W
R273	1	1	1	RT05103140	Fixed, 10KΩ ±5%, ¼W
R174	1	1	1	RT05103140	Fixed, 10KΩ ±5%, ¼W
R274	1	1	1	RT05103140	Fixed, 10KΩ ±5%, ¼W
R301	1	1	1	RA01540020	Trimming, 150KΩ
R302	1	1	1	RA01540020	Trimming, 150KΩ
R303	1	1	1	RT05390140	Fixed, 390Ω ±5%, ¼W
R304	1	1	1	RT05154140	Fixed, 150KΩ ±5%, ¼W
R305	1	1	1	RT05154140	Fixed, 150KΩ ±5%, ¼W
R306	1	1	1	GJ05221020	Fixed, 220Ω ±5%, 2W
R307	1	1	1	GJ05271020	Fixed, 270Ω ±5%, 2W
R308	1	1	1	RT05390140	Fixed, 39Ω ±5%, ¼W
R350	10	10	10	RC00000120	Fixed, 0Ω ½W
					P100-CAPACITORS
C101	1	1	1	DF65501010	Film, 500pF
C201	1	1	1	DF65501010	Film, 500pF
C102	1	1	1	EE10601650	Electrolytic, 10μF, 16V
C202	1	1	1	EE10601650	Electrolytic, 10μF, 16V
C103	1	1	1	EE22602550	Electrolytic, 22μF, 25V
C203	1	1	1	EE22602550	Electrolytic, 22μF, 25V
C104	1	1	1	DD16201010	Film, 200pF
C204	1	1	1	DD16201010	Film, 200pF

U: U.S.A.
C: Canada
N: Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
C105	1	1	1	EE47601050	Electrolytic, 47μF, 10V
C205	1	1	1	EE47601050	Electrolytic, 47μF, 10V
C106	1	1	1	DD16151010	Ceramic, 150pF
C206	1	1	1	DD16151010	Ceramic, 150pF
C107	1	1	1	DF15223050	Film, 0.022μF
C207	1	1	1	DF15223050	Film, 0.022μF
C108	1	1	1	EE10601650	Electrolytic, 10μF, 16V
C208	1	1	1	EE10601650	Electrolytic, 10μF, 16V
C109	1	1	1	EE47601050	Electrolytic, 47μF, 10V
C209	1	1	1	EE47601050	Electrolytic, 47μF, 10V
C110	1	1	1	DF65821010	Film, 820pF
C210	1	1	1	DF65821010	Film, 820pF
C111	1	1	1	EA10703590	Electrolytic, 100μF, 35V
C211	1	1	1	EA10703590	Electrolytic, 100μF, 35V
C112	1	1	1	EE47405050	Electrolytic, 0.47μF, 50V
C212	1	1	1	EE47405050	Electrolytic, 0.47μF, 50V
C113	1	1	1	DD16201010	Ceramic, 200pF
C213	1	1	1	DD16201010	Ceramic, 200pF
C114	1	1	1	EA10701090	Electrolytic 100μF, 10V
C214	1	1	1	EA10701090	Electrolytic, 100μF, 10V
C115	1	1	1	DD16101010	Ceramic, 100pF,
C215	1	1	1	DD16101010	Ceramic, 100pF
C116	1	1	1	EA10701090	Electrolytic, 100μF, 10V
C216	1	1	1	EA10701090	Electrolytic, 100μF, 10V
C117	1	1	1	EA10703590	Electrolytic, 100μF, 35V
C217	1	1	1	EA10703590	Electrolytic, 100μF, 35V
C118	1	1	1	EE22503550	Electrolytic, 2.2μF 35V
C218	1	1	1	EE22503550	Electrolytic, 2.2μF, 35V
C119	1	1	1	DF65151510	Film, 150pF
C219	1	1	1	DF65151510	Film, 150pF
C120	1	1	1	DF65101010	Film, 100pF
C220	1	1	1	DF65101010	Film, 100pF
C121	1	1	1	DF65501010	Film, 500pF
C221	1	1	1	DF65501010	Film, 500pF
C122	1	1	1	DF15182050	Film, 0.0018μF
C222	1	1	1	DF15182050	Film, 0.0018μF
C123	1	1	1	DF65101010	Film, 100pF
C223	1	1	1	DF65101010	Film, 100pF
C124	1	1	1	EA47601090	Electrolytic, 47μF, 10V
C224	1	1	1	EA47601090	Electrolytic, 47μF, 10V
C125	1	1	1	EE22503550	Electrolytic, 2.2μF, 35V
C225	1	1	1	EE22503550	Electrolytic, 2.2μF, 35V
C126	1	1	1	DD16501010	Ceramic, 500pF
C226	1	1	1	DD16501010	Ceramic, 500pF
C127	1	1	1	EE47503550	Electrolytic, 4.7μF, 35V
C227	1	1	1	EE47503550	Electrolytic, 4.7μF, 35V
C128	1	1	1	EA10601690	Electrolytic, 10μF, 16V
C228	1	1	1	EA10601690	Electrolytic, 10μF, 16V
C129	1	1	1	EE47503550	Electrolytic, 4.7μF, 35V
C229	1	1	1	EE47503550	Electrolytic, 4.7μF, 35V
C130	1	1	1	EE10505050	Electrolytic, 1μF, 50V
C230	1	1	1	EE10505050	Electrolytic, 1μF, 50V
C131	1	1	1	EE22503550	Electrolytic, 2.2μF, 35V
C231	1	1	1	EE22503550	Electrolytic, 2.2μF, 35V
C132	1	1	1	EA47503590	Electrolytic, 4.7μF, 35V
C232	1	1	1	EA47503590	Electrolytic, 4.7μF, 35V
C133	1	1	1	EA47503590	Electrolytic, 4.7μF, 35V
C233	1	1	1	EA47503590	Electrolytic, 4.7μF, 35V
C134	1	1	1	EE10505050	Electrolytic, 1μF, 50V
C234	1	1	1	EE10505050	Electrolytic, 1μF, 50V
C135	1	1	1	DD16101010	Ceramic 100pF
C235	1	1	1	DD16101010	Ceramic, 100pF
C136	1	1	1	EE47503550	Electrolytic, 4.7μF, 35V
C236	1	1	1	EE47503550	Electrolytic, 4.7μF, 35V
C137	1	1	1	EA10703590	Electrolytic, 100μF, 35V
C237	1	1	1	EA10703590	Electrolytic, 100μF, 35V
C138	1	1	1	EE10505050	Electrolytic, 1μF, 50V
C238	1	1	1	EE10505050	Electrolytic, 1μF, 50V
C139	1	1	1	DD16201010	Ceramic, 200pF
C239	1	1	1	DD16201010	Ceramic, 200pF
C140	1	1	1	EM22402510	Electrolytic, 0.22μF, 25V
C240	1	1	1	EM22402510	Electrolytic, 0.22μF, 25V
C141	1	1	1	EE10602550	Electrolytic, 10μF, 25V
C241	1	1	1	EE10602550	Electrolytic, 10μF, 25V
C142	1	1	1	DF15563050	Film, 0.056μF
C242	1	1	1	DF15563050	Film, 0.056μF
C143	1	1	1	DF15183050	Film, 0.018μF
C243	1	1	1	DF15183050	Film, 0.018μF
C144	1	1	1	DF15153050	Film, 0.015μF
C244	1	1	1	DF15153050	Film, 0.015μF
C145	1	1	1	DF15153050	Film, 0.015μF
C245	1	1	1	DF15153050	Film, 0.015μF
C146	1	1	1	DF65821010	Film, 820pF
C246	1	1	1	DF65821010	Film, 820pF
C147	1	1	1	DF65101010	Film, 100pF
C247	1	1	1	DF65101010	Film, 100pF
C148	1	1	1	EA10703590	Electrolytic, 100μF, 35V
C248	1	1	1	EA10703590	Electrolytic 100μF, 35V
C301	1	1	1	DF66181500	Film, 180pF, 125V
C302	1	1	1	DF66181500	Film, 180pF, 125V
C303	1	1	1	DF15153510	Film, 0.015μF, 200V
C304	1	1	1	EE33602550	Electrolytic, 33μF, 25V
C305	1	1	1	DF16102050	Film 0.001μF,
C306	1	1	1	DF16102510	Film, 0.001μF, 200V
C307	1	1	1	DF16102510	Film, 0.001μF, 200V
C308	1	1	1	EA10702590	Electrolytic, 100μF, 25V
					P100-MISCELLANEOUS
P106	3	3	3	3444118050	Spacer
P107	12	12	12	2933118020	Spacer
J101	94	94	94	YP10001130	Plugs
					POWER SUPPLY CIRCUIT BOARD-P400
P400	1	1	1	YD41130020	P. W. Board (Print Only)
	1	1	1	ZZ41130020	P. W. Board Assembly
					P400-SEMICONDUCTORS
Q401	1	1	1	HD20011050	Diode, 1S1555
Q402	1	1	1	HT309451Q0	Transistor, 2SC945(Q)
Q403	1	1	1	HT309451Q0	Transistor, 2SC945(Q)
Q404	1	1	1	HT309451Q0	Transistor, 2SC945(Q)
Q405	1	1	1	HT403891A0	Transistor, 2SD389(O)
Q406	1	1	1	HD30046090	Diode, BZ-310
Q407	1	1	1	HD20016100	Diode, 10DC1 +
Q408	1	1	1	HD20017100	Diode, 10DC1 −
Q409	1	1	1	HD20016100	Diode, 10DC1 +
Q410	1	1	1	HD20017100	Diode, 10DC1 −
Q411	1	1	1	HD10001010	Diode, 1N34A
					P400-RESISTORS
R401	1	1	1	RT05047140	Fixed, 4.7Ω ±5%, ¼W
R402	1	1	1	RT05047140	Fixed, 4.7Ω ±5%, ¼W
R403	1	1	1	RT05105140	Fixed, 1MΩ ±5%, ¼W
R404	1	1	1	RT05331140	Fixed, 330Ω ±5%, ¼W
R405	1	1	1	RT05223140	Fixed, 22KΩ ±5%, ¼W
R406	1	1	1	RT05563140	Fixed, 56KΩ ±5%, ¼W
R407	1	1	1	RT05221140	Fixed, 220Ω ±5%, ¼W
R408	1	1	1	RT05223140	Fixed, 22KΩ ±5%, ¼W
R409	1	1	1	RT05223140	Fixed, 22KΩ ±5%, ¼W

U: U.S.A.
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REF. DESIG.	Q'TY U	Q'TY C	Q'TY N	PART NO.	DESCRIPTION
R410	1	1	1	RT05473140	Fixed, 47KΩ ±5%, ¼W
R411	1	1	1	RT05047140	Fixed, 4.7Ω ±5%, ¼W
R412	1	1	1	RT05223140	Fixed, 22KΩ ±5%, ¼W
R413	1	1	1	GJ05471020	Fixed, 470Ω ±5%, 2 W
R414	1	1	1	GJ05821020	Fixed, 820Ω ±5%, 2 W
R415	1	1	1	GJ05821010	Fixed, 820Ω ±5%, 1 W
R416	1	1	1	GJ05100020	Fixed, 10Ω ±5%, 2 W
R417	1	1	1	GJ05150010	Fixed, 15Ω ±5%, 1 W
R418	1	1	1	GJ05150010	Fixed, 15Ω ±5%, 1 W
R419	1	1	1	RT05185140	Fixed, 1.8MΩ ±5%, ¼W
R420	1	1	1	RT05563140	Fixed, 56KΩ ±5%, ¼W
R421	1	1	1	RT05393140	Fixed, 39KΩ ±5%, ¼W
R422	1	1	1	GJ05102010	Fixed, 1KΩ ±5%, 1W
R450	2	2	2	RC00000120	Fixed, 0Ω, ½W
					P400-CAPACITORS
C401	1	1	1	EE10601650	Electrolytic, 10μF, 16V
C402	1	1	1	EZ10701010	Electrolytic, 100μF, 10V
C403	1	1	1	EE22600650	Electrolytic, 22μF, 6.3V
C404	1	1	1	EA22703590	Electrolytic, 220μF, 35V
C405	1	1	1	EA47703590	Electrolytic, 470μF, 35V
C406	1	1	1	EA47705090	Electrolytic, 470μF, 50V
C407	1	1	1	EA47705090	Electrolytic, 470μF, 50V
C408	1	1	1	DF16103500	Film, 0.01μF, 200V
C409	1	1	1	DF16103500	Film, 0.01μF, 200V
C410	1	1	1	DF16103500	Film, 0.01μF, 200V
C411	1	1	1	DF16103500	Film, 0.01μF, 200V
C412	1	1	1	DF16103500	Film, 0.01μF, 200V
C413	1	1	1	DF16103500	Film, 0.01μF, 200V
C414	1	1	1	DF16103500	Film, 0.01μF, 200V
C415	1	1	1	DF16103500	Film, 0.01μF, 200V
C416	1	1	1	DK18503010	Ceramic, 0.05μF
C417	1	1	1	EA22801690	Electrolytic, 2200μF, 16V
C418	1	1	1	EA10505090	Electrolytic, 1μF, 50V
					P400-MISCELLANEOUS
G401	1	1	1	BF10400030	Printed Comp., 0.1μF + 120Ω
J401	20	20	20	YP10001130	Plugs
P406	7	7	7	3444118050	Spacer
P407	14	14	14	2933118020	Spacer
					SWITCH CIRCUIT BOARD-P500
P500	1	1	1	YD34480042	P. W. Board (Print Only)
	1	1	1	ZZ34480040	P. W. Board Assembly
					P500-MISCELLANEOUS
S501	1	1	1	SP10070010	Push Switch with S502+S507
J501	51	51	51	YP10001130	Plugs
					VOLUME CIRCUIT BOARD-P600
P600	1	1	1	YD34480050	P. W. Board (Print Only)
	1	1	1	ZZ34480050	P. W. Board Assembly
					P600-RESISTERS
R601	1	1	1	RS05030240	Variable, 50KΩ(A), Master
R602	1	1	1	RX05030110	Variable, 50KΩ(A), Line(L)
R603	1	1	1	RX05030110	Variable, 50KΩ(A), Line(R)
R604	1	1	1	RT05223140	Fixed, 22KΩ ±5%, ¼W
R605	1	1	1	RT05223140	Fixed, 22KΩ ±5%, ¼W
R606	1	1	1	RX05030110	Variable, 50KΩ(A), Mic (L)
R607	1	1	1	RX05030110	Variable, 50KΩ(A), Mic (R)
R608	1	1	1	RT05104140	Fixed, 100KΩ ±5%, ¼W
R609	1	1	1	RT05104140	Fixed, 100KΩ ±5%, ¼W

REF. DESIG.	Q'TY U	Q'TY C	Q'TY N	PART NO.	DESCRIPTION
					P600-PLUGS
J601	12	12	12	YP10001130	Plugs
					LAMP CIRCUIT BOARD-P650
P650	1	1	1	YD34480080	P. W. Board (Print Only)
	1	1	1	ZZ34480080	P. W. Board Assembly
					P650-MISCELLANEOUS
J651 ~ J658	8	8	8	YJ08000170	Jacks
J659	8	8	8	YP10001130	Plugs
V651 ~ V654	4	4	4	IN10080070	Lamps
					TERMINAL CIRCUIT BOARD-P700
P700	1	1		YD41130030	P. W. Board (Print Only)
	1	1		ZZ41130030	P. W. Board Assembly
P700			1	YD41130040	P. W. Board (Print Only)
			1	ZZ41130040	P. W. Board Assembly
					P700-SWITCHES
S701	1	1	1	SS02020420	Slide Switch
S702	1	1	1	SS02020420	Slide Switch
					P700-RESISTORS
R701	1	1	1	RK02030360	Variable, 20KΩ (A), FM Cal(L)
R702	1	1	1	RK02030360	Variable, 20KΩ (A), FM Cal(R)
R703	1	1		RT05683140	Fixed, 68KΩ ±5%, ¼W
R704	1	1		RT05683140	Fixed, 68KΩ ±5%, ¼W
R705	1	1		RT05103140	Fixed, 10KΩ ±5%, ¼W
R706	1	1		RT05103140	Fixed, 10KΩ ±5%, ¼W
R703			1	RT05393140	Fixed, 39KΩ ±5%, ¼W
R704			1	RT05393140	Fixed, 39KΩ ±5%, ¼W
R705			1	RT05183140	Fixed, 18KΩ ±5%, ¼W
R706			1	RT05183140	Fixed, 18KΩ ±5%, ¼W
					P700-CAPACITORS
C701	1	1	1	DF15122050	Film, 0.0012μF
C702	1	1	1	DF15122050	Film, 0.0012μF
					P700-MISCELLANEOUS
J701			1	YT02020100	Terminal, 2P, RCA Type, Input
J702			1	YT02020100	Terminal, 2P, RCA Type, Output
J703			1	YJ11000170	J ack, DIN
J704	1	1		YT02040070	Terminal, 4P RCA Type, Input, Output
J711	13	13	15	YP10001130	Plugs
					DOLBY CIRCUIT BOARD-P800
P800	1	1	1	YD34440092	P. W. Board (Print Only)
	1	1	1	ZZ34440092	P. W. Board Assembly
					P800-SEMICONDUCTORS
Q801	1	1	1	HT306441B0	Transistor, 2SC644(S)
Q901	1	1	1	HT306441B0	Transistor, 2SC644(S)
Q802	1	1	1	HT306441B0	Transistor, 2SC644(S)
Q902	1	1	1	HT306441B0	Transistor, 2SC644(S)
Q803	1	1	1	HF200301E0	Transistor, 2SK30A(D)
Q903	1	1	1	HF200301E0	Transistor, 2SK30A(D)
Q804	1	1	1	HT306441B0	Transistor, 2SC644(S)
Q904	1	1	1	HT306441B0	Transistor, 2SC644(S)
Q805	1	1	1	HT107211T0	Transistor, 2SA721(T)
Q905	1	1	1	HT107211T0	Transistor, 2SA721(T)

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REF. DESIG.	Q'TY U	Q'TY C	Q'TY N	PART NO.	DESCRIPTION
Q806	1	1	1	HT306441B0	Transistor, 2SC644(S)
Q906	1	1	1	HT306441B0	Transistor, 2SC644(S)
Q807	1	1	1	HD10003020	Diode, 2OA90
Q907	1	1	1	HD10003020	Diode, 2OA90
Q808	1	1	1	HD10003020	Diode, 2OA90
Q908	1	1	1	HD10003020	Diode, 2OA90
Q809	1	1	1	HD20011050	Diode, 1S1555
Q909	1	1	1	HD20011050	Diode, 1S1555
Q810	1	1	1	HD20011050	Diode, 1S1555
Q910	1	1	1	HD20011050	Diode, 1S1555
Q811	1	1	1	HD20011050	Diode, 1S1555
Q911	1	1	1	HD20011050	Diode, 1S1555
Q830	1	1	1	HD30031090	Diode, WZ081
					P800-RESISTORS
R801	1	1	1	RT05154140	Fixed, 150KΩ ±5%, ¼W
R901	1	1	1	RT05154140	Fixed, 150KΩ ±5%, ¼W
R802	1	1	1	RT05184140	Fixed, 180KΩ ±5%, ¼W
R902	1	1	1	RT05184140	Fixed, 180KΩ ±5%, ¼W
R803	1	1	1	RT05273140	Fixed, 27KΩ ±5%, ¼W
R903	1	1	1	RT05273140	Fixed, 27KΩ ±5%, ¼W
R804	1	1	1	RT05223140	Fixed, 22KΩ ±5%, ¼W
R904	1	1	1	RT05223140	Fixed, 22KΩ ±5%, ¼W
R805	1	1	1	RT05822140	Fixed, 8.2KΩ ±5%, ¼W
R905	1	1	1	RT05822140	Fixed, 8.2KΩ ±5%, ¼W
R806	1	1	1	RT05154140	Fixed, 150KΩ ±5%, ¼W
R906	1	1	1	RT05154140	Fixed, 150KΩ ±5%, ¼W
R807	1	1	1	RT05272140	Fixed, 2.7KΩ ±5%, ¼W
R907	1	1	1	RT05272140	Fixed, 2.7KΩ ±5%, ¼W
R808	1	1	1	RT05333140	Fixed, 33KΩ ±5%, ¼W
R908	1	1	1	RT05333140	Fixed, 33KΩ ±5%, ¼W
R809	1	1	1	RT05274140	Fixed, 270KΩ ±5%, ¼W
R909	1	1	1	RT05274140	Fixed, 270KΩ ±5%, ¼W
R810	1	1	1	RT05473140	Fixed, 47KΩ ±5%, ¼W
R910	1	1	1	RT05473140	Fixed, 47KΩ ±5%, ¼W
R811	1	1	1	RT05332140	Fixed, 3.3KΩ ±5%, ¼W
R911	1	1	1	RT05332140	Fixed, 3.3KΩ ±5%, ¼W
R812	1	1	1	RT05222140	Fixed, 2.2KΩ ±5%, ¼W
R912	1	1	1	RT05222140	Fixed, 2.2KΩ ±5% ¼W
R813	1	1	1	RT05684140	Fixed, 680KΩ ±5%, ¼W
R913	1	1	1	RT05684140	Fixed, 680KΩ ±5%, ¼W
R814	1	1	1	RT05183140	Fixed, 18KΩ ±5%, ¼W
R914	1	1	1	RT05183140	Fixed, 18KΩ ±5%, ¼W
R815	1	1	1	RA01030140	Trimming, 10KΩ
R915	1	1	1	RA01030140	Trimming, 10KΩ
R816	1	1	1	RT05272140	Fixed, 2.7KΩ ±5%, ¼W
R916	1	1	1	RT05272140	Fixed, 2.7KΩ ±5%, ¼W
R817	1	1	1	RT05153140	Fixed, 15KΩ ±5%, ¼W
R917	1	1	1	RT05153140	Fixed, 15KΩ ±5%, ¼W
R818	1	1	1	RT05822140	Fixed, 8.2KΩ ±5%, ¼W
R918	1	1	1	RT05822140	Fixed, 8.2KΩ ±5%, ¼W
R819	1	1	1	RA01020110	Trimming, 1KΩ
R919	1	1	1	RA01020110	Trimming, 1KΩ
R820	1	1	1	RT05822140	Fixed, 8.2KΩ ±5%, ¼W
R920	1	1	1	RT05822140	Fixed, 8.2KΩ ±5%, ¼W
R821	1	1	1	RT05822140	Fixed, 8.2KΩ ±5%, ¼W
R921	1	1	1	RT05822140	Fixed, 8.2KΩ ±5%, ¼W
R822	1	1	1	RT05103140	Fixed, 10KΩ ±5%, ¼W
R922	1	1	1	RT05103140	Fixed, 10KΩ ±5%, ¼W
R823	1	1	1	RT05333140	Fixed, 33KΩ ±5%, ¼W
R923	1	1	1	RT05333140	Fixed, 33KΩ ±5%, ¼W
R824	1	1	1	RT05124140	Fixed, 120KΩ ±5%, ¼W
R924	1	1	1	RT05124140	Fixed, 120KΩ ±5%, ¼W
R825	1	1	1	RT05473140	Fixed, 47KΩ ±5%, ¼W

REF. DESIG.	Q'TY U	Q'TY C	Q'TY N	PART NO.	DESCRIPTION
R925	1	1	1	RT05473140	Fixed, 47KΩ ±5%, ¼W
R826	1	1	1	RT05272140	Fixed, 2.7KΩ ±5%, ¼W
R926	1	1	1	RT05272140	Fixed, 2.7KΩ ±5%, ¼W
R827	1	1	1	RT05102140	Fixed, 1KΩ ±5%, ¼W
R927	1	1	1	RT05102140	Fixed, 1KΩ ±5%, ¼W
R828	1	1	1	RT05330140	Fixed, 33Ω ±5%, ¼W
R928	1	1	1	RT05330140	Fixed, 33Ω ±5%, ¼W
R829	1	1	1	RT05153140	Fixed, 15KΩ ±5%, ¼W
R929	1	1	1	RT05153140	Fixed, 15KΩ ±5%, ¼W
R830	1	1	1	RT05470140	Fixed, 47Ω ±5%, ¼W
R930	1	1	1	RT05470140	Fixed, 47Ω ±5%, ¼W
R831	1	1	1	RT05274140	Fixed, 270KΩ ±5%, ¼W
R931	1	1	1	RT05274140	Fixed, 270KΩ ±5%, ¼W
R832	1	1	1	RT05274140	Fixed, 270KΩ ±5%, ¼W
R932	1	1	1	RT05274140	Fixed, 270KΩ ±5%, ¼W
R833	1	1	1	RT05224140	Fixed, 220KΩ ±5%, ¼W
R933	1	1	1	RT05224140	Fixed, 220KΩ ±5%, ¼W
R800	1	1	1	RC00000120	Fixed, 0Ω ½W
					P800-CAPACITORS
C801	1	1	1	EA10601690	Electrolytic, 10μF, 16V
C901	1	1	1	EA10601690	Electrolytic, 10μF, 16V
C802	1	1	1	EA10601690	Electrolytic, 10μF, 16V
C902	1	1	1	EA10601690	Electrolytic, 10μF, 16V
C803	1	1	1	DF15562050	Film, 0.0056μF
C903	1	1	1	DF15562050	Film, 0.0056μF
C804	1	1	1	DF15472050	Film, 0.0047μF
C904	1	1	1	DF15472050	Film, 0.0047μF
C805	1	1	1	DF15273050	Film, 0.027μF
C905	1	1	1	DF15273050	Film, 0.027μF
C806	1	1	1	EA10601690	Electrolytic, 10μF, 16V
C906	1	1	1	EA10601690	Electrolytic, 10μF, 16V
C807	1	1	1	DF17104050	Film, 0.1μF
C907	1	1	1	DF17104050	Film, 0.1μF
C808	1	1	1	EA47601090	Electrolytic, 47μF, 10V
C908	1	1	1	EA47601090	Electrolytic, 47μF, 10V
C809	1	1	1	DF17104050	Film, 0.1μF
C909	1	1	1	DF17104050	Film, 0.1μF
C810	1	1	1	EA10601690	Electrolytic, 10μF, 16V
C910	1	1	1	EA10601690	Electrolytic, 10μF, 16V
C811	1	1	1	DD15200010	Ceramic, 20pF
C911	1	1	1	DD15200010	Ceramic, 20pF
C812	1	1	1	EA10601690	Electrolytic, 10μF, 16V
C912	1	1	1	EA10601690	Electrolytic, 10μF, 16V
C813	1	1	1	DF17104050	Film, 0.1μF
C913	1	1	1	DF17104050	Film, 0.1μF
C814	1	1	1	DF17104050	Film, 0.1μF
C914	1	1	1	DF17104050	Film, 0.1μF
C815	1	1	1	DF17334050	Film, 0.33μF
C915	1	1	1	DF17334050	Film, 0.33μF
C820	1	1	1	EA10702590	Electrolytic, 100μF, 25V
					P800-MISCELLANEOUS
J801	1	1	1	YP06000270	Plug
J802	1	1	1	YJ06000270	Jack
					GENERAL MISCELLANEOUS
R001	1	1	1	RT05082140	Fixed Resistor, 8.2Ω ±5%, ¼W
R002	1	1	1	RT05082140	Fixed Resistor, 8.2Ω ±5%, ¼W
C001	1	1	1	DK17102010	Ceramic Capacitor, 1000pF
C002	1	1	1	DK17102010	Ceramic Capacitor, 1000pF
C003	1	1	1	DK17102010	Ceramic Capacitor, 1000pF
C004			1	DK17102010	Ceramic Capacitor, 1000pF
C006		1		DF17473590	Film Capacitor, 0.047μF

U: U.S.A.
C: Canada
N: Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N		
J001	1	1	1	YJ01000820	Jack
J002	1	1	1	YJ01000820	Jack
J003	1	1	1	YJ01000810	Jack
J004	1	1	1	YJ08000130	Jack
J005			1	YJ08000090	Jack
J006			1	YJ08000090	Jack
J007			1	YJ08000090	Jack
J008			1	YJ08000220	Jack
J009			1	BY03110010	Jack
J011	1	1	1	YT01010050	Terminal
J012	1	1	1	BY03100010	Jack
J013	1	1	1	YJ07000140	Jack
J014	1	1		YL01040160	Terminal
J014			1	YL09020040	Terminal
S001	1	1	1	SP04010150	Pushswitch
S003	1	1	1	SM01010360	Mini-Switch
S004	1	1	1	SM01010520	Mini-Switch
S005	1	1	1	SM02020070	Mini-Switch
S006	1	1	1	SM01010462	Mini-Switch
H001	1	1	1	LH42851020	Rec/Play Head
H002	1	1	1	LH31000400	Erase Head
M001	1	1	1	MM11200042	DC Motor
S002	1	1	1	SM01010530	Mini-Switch
M010	1	1	1	IM11080014	Meter, Left
M011	1	1	1	IM11080014	Meter, Right
L001		1		TS16016020	Power Transformer
L001			1	TS16017020	Power Transformer
L001	1			TS16016040	Power Transformer
V001	1	1	1	IN10080300	Lamp
V002	1	1	1	IN10080070	Lamp
F001			1	FS10100800	Fuse, 1A
F002			1	FS10100800	Fuse, 1A
F003			1	FS10315800	Fuse, 3.15A
F004			1	FS10031800	Fuse, 3.15mA
W001			1	YC01900030	Power Cord
W001	1	1		YC02400220	Power Cord
G001	1			BF10400040	Printed Comp., 0.1μF + 120Ω

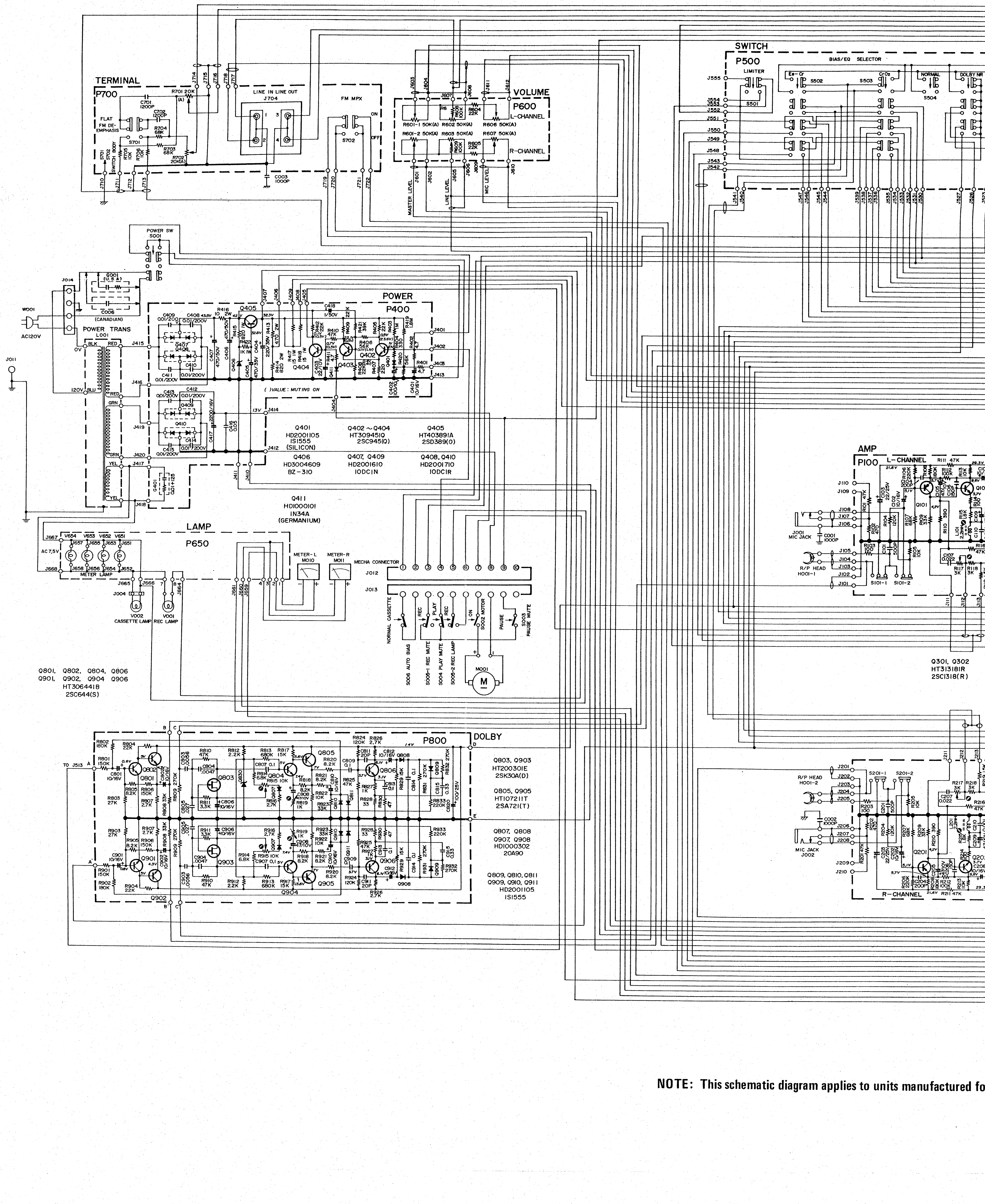
16 TECHNICAL SPECIFICATIONS

Signal-to-Noise Ratio	
DOLBY NR OFF	
with Fe-Cr or CrO$_2$ tape	50 dB
with standard tape	48 dB
DOLBY NR ON improves S/N by	8 dB
Total Harmonic Distortion	2%
Frequency Response	
with Fe-Cr tape	40 Hz to 17 kHz
with CrO$_2$ tape	40 Hz to 15 kHz
with standard tape	40 Hz to 13 kHz
Wow and Flutter	0.15% W.R.M.S.
Input Impedance	
Mic	8.2 kΩ
Line	120 kΩ
Line Output Level	900 mV
Line Output Impedance	3.9 kΩ
Headphone Output Impedance	8Ω

GENERAL

Power Requirements	120V AC, 60 Hz (for U.S.A. and Canada) 110/120/220/240 AC, 50 Hz (for Europe)
Power Consumption	25 W
Dimensions:	
Width	17-3/8 inches
Height	5-3/8 inches
Depth	11-1/2 inches
Weight:	
Model 5020 Only	17 lbs 10 oz
Packed for Shipment	23 lbs 11 oz

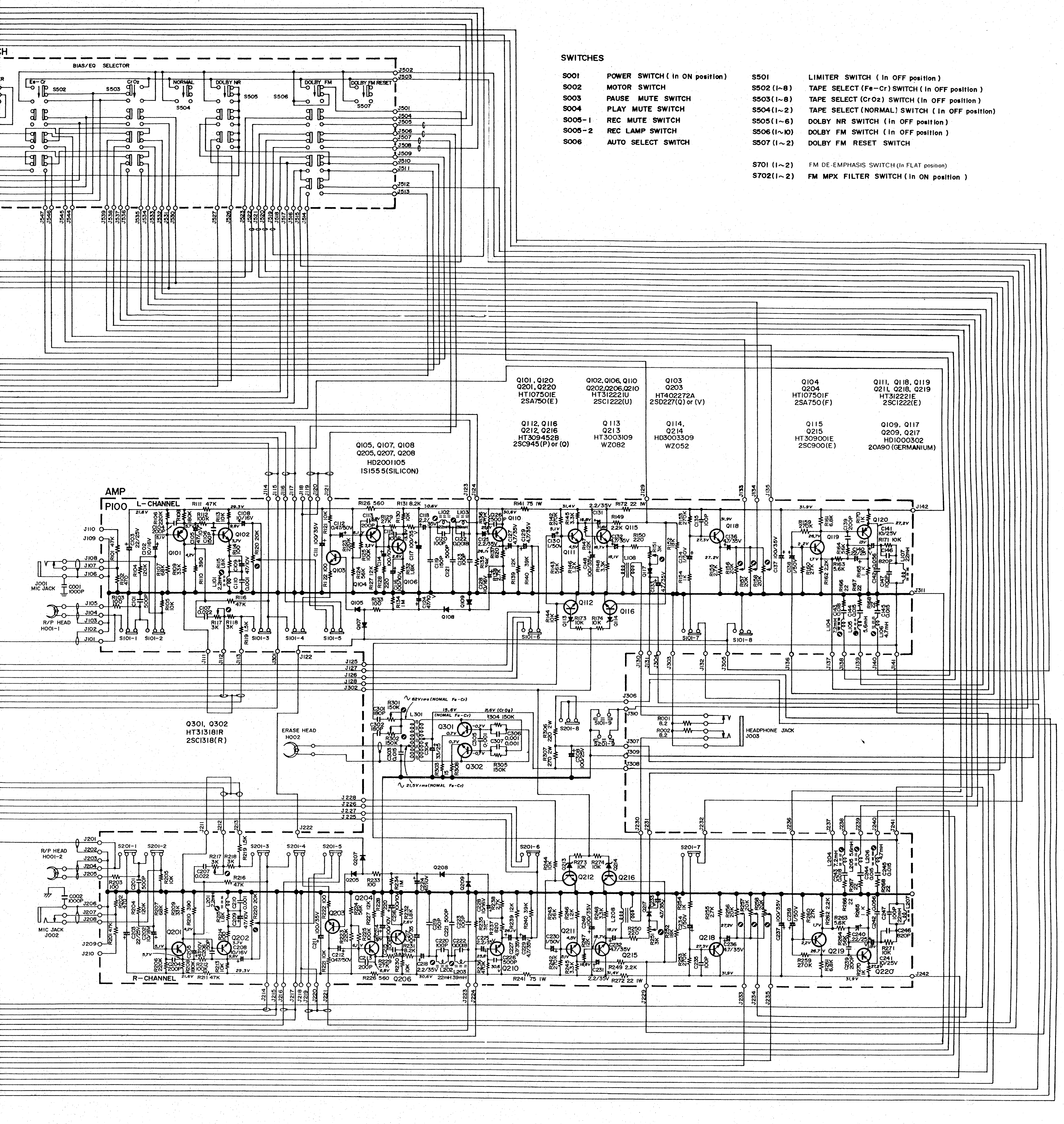
Pre-Amp. . . . .
Power Supply . . . .
Switch . . . .
Volume . . . .
Lamp . . . .
Terminals . . . .
Dolby . . . .


TERMINAL
P700
FLAT
FM DE-EMPHASIS
SWITCH BODY
LINE IN LINE OUT
J704
FM MPX
ON
OFF
VOLUME
P600
L-CHANNEL
R-CHANNEL
MASTER LEVEL
LINE LEVEL
MIC LEVEL
SWITCH
P500
LIMITER
BIAS/EQ SELECTOR
NORMAL
DOLBY NR
POWER SW
S001
POWER TRANS
L001
(CANADIAN)
AC120V
POWER
P400
( )VALUE: MUTING ON
Q401
HD2001105
1S1555
(SILICON)
Q402 ~ Q404
HT3094510
2SC945(Q)
Q405
HT403891A
2SD389(Q)
Q406
HD3004609
BZ-310
Q407, Q409
HD2001610
10DC1N
Q408, Q410
HD2001710
10DC1R
Q411
HD1000101
1N34A
(GERMANIUM)
LAMP
P650
METER LAMP
CASSETTE LAMP
REC LAMP
METER-L
M010
METER-R
M011
MECHA CONNECTOR
J012
J013
NORMAL CASSETTE
S006 AUTO BIAS
S005-1 REC MUTE
S004 PLAY MUTE
S005-2 REC LAMP
S002 MOTOR
S003 PAUSE MUTE
PAUSE
M001
AMP
P100
L-CHANNEL
R-CHANNEL
MIC JACK
J001
J002
R/P HEAD
H001-1
H001-2
Q301, Q302
HT313181R
2SC1318(R)
Q801, Q802, Q804, Q806
Q901, Q902, Q904, Q906
HT306441B
2SC644(S)
DOLBY
P800
TO J513
Q803, Q903
HT200301E
2SK30A(D)
Q805, Q905
HT107211T
2SA721(T)
Q807, Q808
Q907, Q908
HD1000302
2OA90
Q809, Q810, Q811
Q909, Q910, Q911
HD2001105
1S1555

NOTE: This schematic diagram applies to units manufactured fo

Pre-Amp.	mounted on P.W. Board, P100
Power Supply	mounted on P.W. Board, P400
Switch	mounted on P.W. Board, P500
Volume	mounted on P.W. Board, P600
Lamp	mounted on P.W. Board, P650
Terminals	mounted on P.W. Board, P700
Dolby	mounted on P.W. Board, P800

MODEL 5020



BIAS/EQ SELECTOR
NORMAL
DOLBY NR
DOLBY FM
DOLBY FM RESET
AMP
P100
L-CHANNEL
R-CHANNEL
MIC JACK J001
R/P HEAD H001-1
MIC JACK J002
R/P HEAD H001-2
ERASE HEAD H002
HEADPHONE JACK J003
Q301, Q302
HT313181R
2SC1318(R)
Q105, Q107, Q108
Q205, Q207, Q208
HD2001105
IS1555(SILICON)
Q101, Q120
Q201, Q220
HT107501E
2SA750(E)
Q102, Q106, Q110
Q202, Q206, Q210
HT312221U
2SC1222(U)
Q103
Q203
HT402272A
2SD227(Q) or (V)
Q104
Q204
HT107501F
2SA750(F)
Q111, Q118, Q119
Q211, Q218, Q219
HT312221E
2SC1222(E)
Q112, Q116
Q212, Q216
HT309452B
2SC945(P) or (Q)
Q113
Q213
HT3003109
WZ082
Q114,
Q214
HD3003309
WZ052
Q115
Q215
HT309001E
2SC900(E)
Q109, Q117
Q209, Q217
HD1000302
20A90 (GERMANIUM)

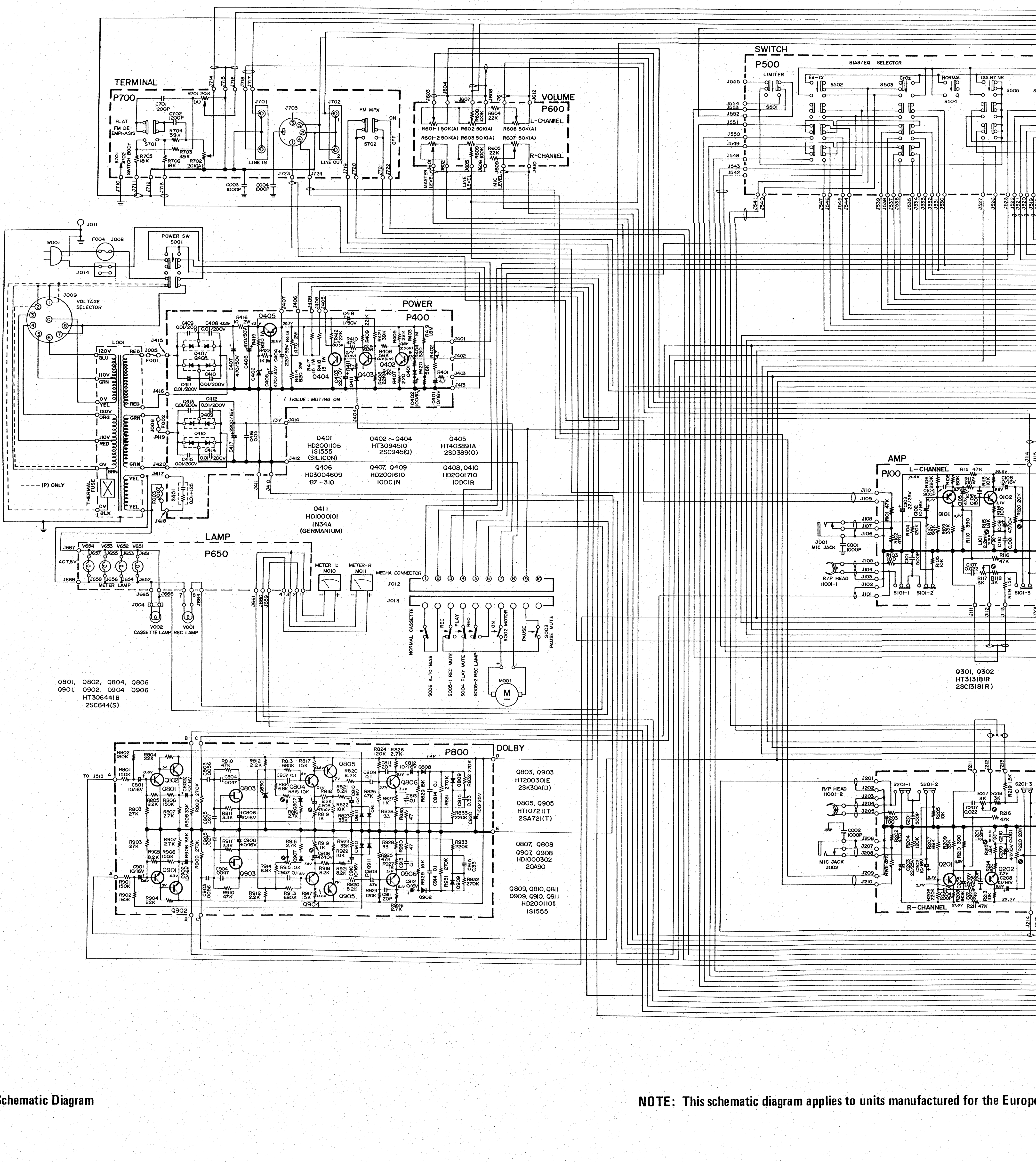
SWITCHES

S001	POWER SWITCH (in ON position)
S002	MOTOR SWITCH
S003	PAUSE MUTE SWITCH
S004	PLAY MUTE SWITCH
S005-1	REC MUTE SWITCH
S005-2	REC LAMP SWITCH
S006	AUTO SELECT SWITCH
S501	LIMITER SWITCH (in OFF position)
S502 (1~8)	TAPE SELECT (Fe-Cr) SWITCH (in OFF position)
S503 (1~8)	TAPE SELECT (CrO2) SWITCH (in OFF position)
S504 (1~2)	TAPE SELECT (NORMAL) SWITCH (in OFF position)
S505 (1~6)	DOLBY NR SWITCH (in OFF position)
S506 (1~10)	DOLBY FM SWITCH (in OFF position)
S507 (1~2)	DOLBY FM RESET SWITCH
S701 (1~2)	FM DE-EMPHASIS SWITCH (In FLAT position)
S702 (1~2)	FM MPX FILTER SWITCH (in ON position)

atic diagram applies to units manufactured for the U.S.A. and Canada market

MODEL 5020

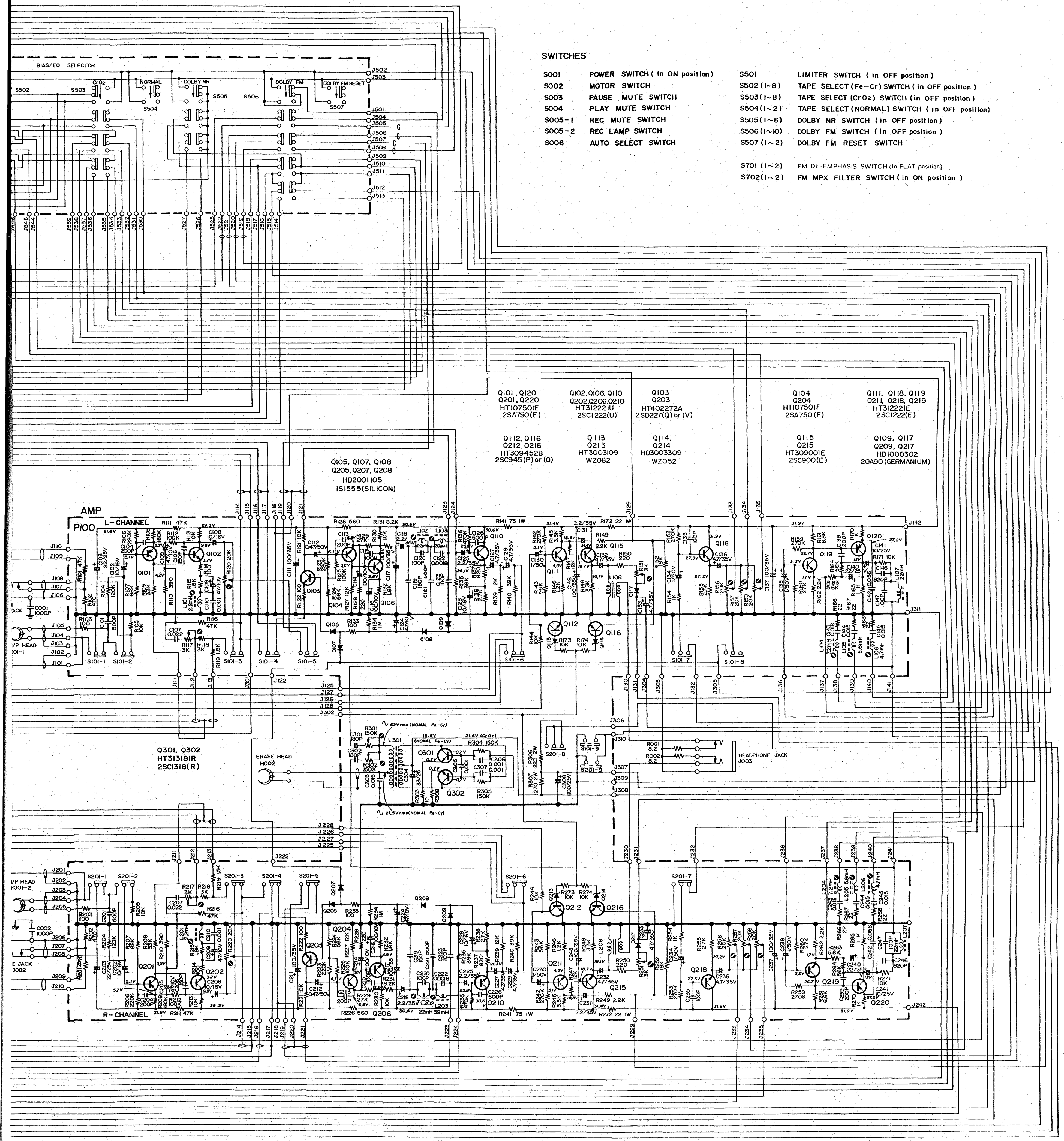
Pre-Amp.	mounted on P.W. Board, P100
Power Supply	mounted on P.W. Board, P400
Switch	mounted on P.W. Board, P500
Volume	mounted on P.W. Board, P600
Lamp	mounted on P.W. Board, P650
Terminals	mounted on P.W. Board, P700
Dolby	mounted on P.W. Board, P800


TERMINAL
P700
FLAT
FM DE-EMPHASIS
SWITCH BODY
LINE IN
LINE OUT
FM MPX
ON
OFF
VOLUME
P600
L-CHANNEL
R-CHANNEL
MASTER LEVEL
LINE LEVEL
MIC LEVEL
SWITCH
P500
LIMITER
BIAS/EQ SELECTOR
NORMAL
DOLBY NR
POWER SW
S001
VOLTAGE SELECTOR
THERMAL FUSE
(P) ONLY
POWER
P400
( )VALUE : MUTING ON
Q401 HD2001105 1S1555 (SILICON)
Q402 ~ Q404 HT3094510 2SC945(Q)
Q405 HT403891A 2SD389(O)
Q406 HD3004609 BZ-310
Q407, Q409 HD2001610 10DC1N
Q408, Q410 HD2001710 10DC1R
Q411 HD1000101 1N34A (GERMANIUM)
LAMP
P650
METER LAMP
CASSETTE LAMP
REC LAMP
METER-L
METER-R
MECHA CONNECTOR
NORMAL CASSETTE
S006 AUTO BIAS
S005-1 REC MUTE
S004 PLAY MUTE
S005-2 REC LAMP
S002 MOTOR
PAUSE
S003 PAUSE MUTE
AMP
P100
L-CHANNEL
R-CHANNEL
MIC JACK
R/P HEAD
Q301, Q302 HT3131811R 2SC1318(R)
Q801, Q802, Q804, Q806
Q901, Q902, Q904, Q906
HT3064418
2SC644(S)
DOLBY
P800
Q803, Q903 HT200301E 2SK30A(D)
Q805, Q905 HT107211T 2SA721(T)
Q807, Q808 Q907, Q908 HD1000302 20A90
Q809, Q810, Q811 Q909, Q910, Q911 HD2001105 1S1555
TO J513

Schematic Diagram

NOTE: This schematic diagram applies to units manufactured for the Europ

ed on P.W. Board, P100
ed on P.W. Board, P400
ed on P.W. Board, P500
ed on P.W. Board, P600
ed on P.W. Board, P650
ed on P.W. Board, P700
ed on P.W. Board, P800


BIAS/EQ SELECTOR
CrO2
NORMAL
DOLBY NR
DOLBY FM
DOLBY FM RESET
S502
S503
S504
S505
S506
S507
AMP
P100
L-CHANNEL
R-CHANNEL
P/P HEAD
ERASE HEAD
H002
HEADPHONE JACK
J003
Q105, Q107, Q108
Q205, Q207, Q208
HD2001105
1S1555(SILICON)
Q101, Q120
Q201, Q220
HT107501E
2SA750(E)
Q102, Q106, Q110
Q202, Q206, Q210
HT312221U
2SC1222(U)
Q103
Q203
HT402272A
2SD227(Q) or (V)
Q104
Q204
HT107501F
2SA750(F)
Q111, Q118, Q119
Q211, Q218, Q219
HT312221E
2SC1222(E)
Q112, Q116
Q212, Q216
HT309452B
2SC945(P) or (Q)
Q113
Q213
HT3003109
WZ082
Q114,
Q214
HD3003309
WZ052
Q115
Q215
HT309001E
2SC900(E)
Q109, Q117
Q209, Q217
HD1000302
20A90 (GERMANIUM)
Q301, Q302
HT313181R
2SC1318(R)

SWITCHES

S001	POWER SWITCH (In ON position)	S501	LIMITER SWITCH (In OFF position)
S002	MOTOR SWITCH	S502 (1~8)	TAPE SELECT (Fe−Cr) SWITCH (In OFF position)
S003	PAUSE MUTE SWITCH	S503(1~8)	TAPE SELECT (CrO2) SWITCH (in OFF position)
S004	PLAY MUTE SWITCH	S504(1~2)	TAPE SELECT (NORMAL) SWITCH (in OFF position)
S005-1	REC MUTE SWITCH	S505(1~6)	DOLBY NR SWITCH (in OFF position)
S005-2	REC LAMP SWITCH	S506 (1~10)	DOLBY FM SWITCH (In OFF position)
S006	AUTO SELECT SWITCH	S507 (1~2)	DOLBY FM RESET SWITCH
		S701 (1~2)	FM DE-EMPHASIS SWITCH (In FLAT position)
		S702(1~2)	FM MPX FILTER SWITCH (In ON position)

lies to units manufactured for the European market